THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

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FEBRUARY.

"Forth goes the woodman, leaving unconcerned
The cheerful haunts of man; to wield the axe,
And drive the wedge, in yonder forest drear,
From morn till eve, his solitary task."

Farm Work for the Month.

WORKING STOCK.

If the working stock has not had the best care through the months past, all must now be especially looked after. It is mistaken judgment to suppose that horses, which must go through the heavy farm labour of spring and summer, may be properly supported through the winter months, because they have comparatively little labour, on hay, or corn fodder. Horses whether at work or not, should have the same care, and the same kind of food, though during the leisure of winter the quantity of grain may be diminished. As the spring approaches they should have food enough, and of such kind as will put them into the very best working order. We do not doubt the economy of feeding horses always with ground and chopped food. Use comb and brush freely, and regularly, and see that they have water at least twice a day. Oxen that have heavy spring work to do, must have the same kind of attention.

COWS.

Cows, in milk, must be fed regularly with such food as will keep up the flow. Well-cured corn fodder, or clover hay, and some roots, with a little corn meal, should be the staples of their daily diet. Those that are to have young in early spring, must be kept, not fat, but in full health and strength. Any approach to weakness, from want of proper food and protection, is likely to prove fatal to the mother and her young.

EWES.

Ewes will require constant looking after, as the time of having their young approaches. Any showing falling off in flesh, should be separated from the flock, and fed more liberally. All should have a moderate supply of grain.

HOGS.

Give hogs food enough through the winter, to keep them in thriving order. Do not allow them to lose flesh, and when the grass begins to start in spring they will grow rapidly, and get the full benefit of the whole season's growth.

No hog, male or female, should be used for breeding purposes, before one year of age. A neglect of this advice has had the effect, very possibly, of lessening the physical stamina of our best breeds, and inducing disease.

Do not fear that breeding sows will get too fat. There may be possible evil from it, but it is not very probable. Much greater danger lies in the other direction.

TOBACCO.

Get on as fast as possible with the preparation of the old crop for market. As the spring weather approaches, bulks that have lain through the winter must be looked to frequently, and on any approach to getting warm, must be shaken out and hung up, or laid lightly in another bulk.

Prepare beds as the weather and condition of the ground may permit, looking to our suggestions of last month. Be sure to sow a sufficiency of seed, and ground, but more sure to have it well done.

MANURES.

Let stock, of every kind, have all the litter necessary to make them, good bedding, and to keep them dry. Beyond what is necessary for such purposes, the coarse material of the farm may be taken directly to the ground it is intended to fertilize, and thrown at once over the surface. The stalks from a large corn field should be fed on some turf land, whenever it is firm enough to bear the tread of cattle.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER Maryland Agricultural College.

FEBRUARY.

Whenever the weather permits, the operations that peculiarly belong to this month should be proceeded with. Digging, trenching, and manuring should not be delayed. Every piece of unoccupied ground should be turned up, if only to destroy weeds and insects.

ASPARAGUS.—Prepare the ground for new plantations, which should be done with the greatest care, which, if properly done, with due attention afterwards, will last, in good condition, for many years. The principal requisite is a good, sandy loam, and rotten dung. Our method, in forming new beds, is to lay on four inches of good, rotten manure upon the surface; trench the ground two feet deep; then add as much more dung, and dig in as deep as for ordinary crops. The beds are then marked off, four feet wide, leaving a pathway two feet wide; then mark out the bed for three rows, one in the centre, and one on each side, a foot from the centre. Lay a ridge of good loam, dung and sand, where each row is to be, about two inches high, upon which plant the plants with an equal portion of roots upon each side of the ridge. We then place about two inches of white sand upon the roots, and above that four inches of good, rich soil, and about the first week in May give a good mulching of rotten manure, which keep the beds moist, and help the plants well through the summer.

Early as the ground is in good working order, there should be no delay in getting ready every inch of ground intended for summer crops. Have all plots requiring manure ready early as possible, as it is much better to have the ground prepared in advance, that the manure may be more completely incorporated with the soil, then to sow or plant immediately after manuring. Ground for cauliflower, brocoli, cabbage, peas, beans, onions, and spinach, should be liberally manured, and deeply spaded. Where onions are only grown upon a small scale, mark out the beds four feet wide, and leave the surface quite rough by so doing; at sowing time the surface will be well pulverized through exposure to the air, and the seed can be sown clean, and rolled in firm, which cannot be done when the ground is pasty, or has been recently turned up. Choose for potatoes such ground as was the last season planted to cabbage, cauliflower, celery, &c., and for which the ground was well manured; make up good, rich borders, under walls, fences, buildings, &c., for early lettuce, radish, &c. On dry soils, plant a few early potatoes; on wet soils, the planting must be deferred until the season is more advanced. For a few early potatoes a very simple method is to make up a slight hot bed with fresh horse manure, and leaves, and if not convenient, to place upon it a frame and lights, cover it with straw mats, or any kind of covering, sufficient to keep out the frost, and by the time the tops appear, the season will be sufficiently advanced to admit of the covering being taken off by day, putting it on at night whenever there is danger of frost.

CABBAGE AND CAULIFLOWERS.—Plant out from the frames all the young plants before they become too much crowded; make fresh sowings in very slight hot beds.

LETTUCE.—Sow a crop of the early French Silesian in frames, to succeed those planted out last fall.

PEAS.—Where the climate, or soil, is too cold to sow in the open ground, cut fresh sod about one foot long, and five inches wide; turn the grassy side downwards, and make a channel along the centre of the upper part, in which sow the peas as you would in the open ground, placing them in the cool grapery, green-house, or frame, from where they can easily be transferred to the open ground whenever the weather is favorable, when the plants will root through the sod into the soil, and will sustain but little check.

SPINACH.—Soon as the ground is in good working order, run the hoe through the fall sown crops, and pick away all decayed leaves and weeds.

Whatever arrears of winter work remain should be completed as soon as the weather permits, or the consequences will be serious; fortunately, the weather has kept things in their places for some time past, for which those who have delayed their fall work may be thankful. Make a thorough clearing up of all the vegetable plots, if not already done; plant all the old stumps of

cabbage close together, to furnish sprouts during early spring. Soon as the soil becomes sufficiently mellow, let all coming-on crops have a thorough hoeing, or surface stirring; this is of the utmost importance at this period; it must not, however, be done until the ground is in good working order.

Do not omit to collect a quantity of tree leaves; they will be very useful for helping to make up hot beds, and for making leaf mold, so useful in potting window and many other kinds of plants; but, in collecting leaves, if regarded only in the light of manure, we think it would be a very expensive material, if all the trouble of raking, hauling, &c., be duly considered. We have used many loads of them in a half rotten state, upon the vegetable garden, but never found them to produce monstrous vegetables, but generally afford those of a superior flavour. For heating purposes, we think much of them, but not as much when used alone as when mixed with about an equal quantity of well-fermented dung.

Do not allow the soap suds to be wasted, as they may be most beneficially poured upon the manure heap, or upon any vacant plot of the vegetable or fruit garden, and over asparagus, and rhubarb beds, in the growing season; they may also be poured between the rows of any of the cabbage tribe when growing.

The Fruit Garden.

When the frost is not too severe, proceed with pruning apple and pear trees. Any gooseberries and currants not previously pruned should be forthwith attended to. See that fall planted trees are properly staked and mulched, and after high winds it will be necessary to look around them, and press the earth gently around the base of each tree.

Where there is any planting to be done let it be performed as soon as the ground is in a fit state for the purpose. In planting do not make the mistake to induce by rich manure the promotion of gross, long jointed wood, in any state of the existence of any kind of fruit tree. Wood of that kind is seldom well-ripened, consequently non-productive, and with peaches, in particular, is liable to gum, and canker, and premature death.

Ground intended to be planted with fruit trees of any kind should be efficiently drained, and trenched, or plowed from sixteen to twenty inches deep. Thereon depend in a great measure the success or failure of the plantation.

Strawberries in pots, placed in the green-house or forcing pit, should, whenever the weather permits, have plenty of air, plenty of light, and plenty of water. Tepid manure water will materially assist in augmenting the size of the berries, but for good flavor and color there must be plenty of light and air.

Refer back to the directions given in this department for the past three months. Complete pruning, planting, trenching, draining, &c., &c., early as possible; lightly fork over vine borders, and avoid cropping them as much as possible.

The Flower Garden.

"I know a garden where in magic bowers,
Enchanted spring most rare and wondrous flowers,
Kept by the charm that on the garden lies,
Invisible to cold, unloving eyes;
That so from those who walk in scorn, and pride,
Each floweret seems of its own self to hide;
But when *they* come who know the blessed spell,
That bids each bud to life and fragrance swell,
Beauty awakes where'er they turn their eyes,
And rarest perfumes at their call arise."

Continue to plant and prune hardy trees and shrubs whenever the weather permits; the protection afforded tender trees and shrubs should be looked to, and kept in good order, as it is not unusual for such plants to suffer as much the present and next month as any time during winter. When the ground is in a proper state proceed with the planting of hardy roses. If the plants are strong the knife must be used with caution; if weak, cut all the shoots back to three or four eyes. Shorten all long roots and cut away all such as may be bruised or broken. If the ground has not been well prepared, we would dig good-sized holes for each plant, using six or eight spades full of good, rotten stable manure to each, and by all means avoid deep planting. If any plants in beds have been raised by the frost they should be fastened, and a top-dressing of leaf mold or manure given to them.

Tulips and Hyacinths, the great favourites of the ladies, should be protected by covering them with three or four inches of leaf mold or well-rotted manure. When planting hardy, herbaceous perennials, the object should be to have as much variety of colour, and succession in the border throughout the season as possible. Complete all new work early as the weather admits. *The busy season will soon be upon us.*

In the arrangement and planting of shrubbery, all trees and shrubs which are to remain permanently should be planted first, and at such a distance from the walks and drives, and from each other, as not to interfere with either the one or the other for years to come, being careful to give

them every chance to develop their proper character. In planting, this is too unfortunately lost sight of, and instead of having our beautiful trees and shrubs in detached groups, and single specimens, giving each ample room to stand forth in all their beauty of outline and tree character, we find them huddled together without form or arrangement, a mass of incongruity, which, to the lover of the beautiful, is painful to behold. The intervening spaces between those which are to remain permanently, may be filled up with mere common sorts, and as they encroach upon those which are to remain pemanently, should be removed. Trees and shrubs managed in this way will need but little pruning and spading about their roots, which we consider a very bad practice. We think the beauty of the grounds around trees and shrubs very much enhanced by a beautiful lawn, one of the most beautiful examples of which may be seen at the experimental gardens, at Washington, D. C.

Kentucky Agricultural College.

This department of the university is fast filling to the capacity of accommodation. There are about eighty students, and a finer and more gentlemanly set of young men are not to be found in any college in the country. It is a handsome sight to see them on parade with their new uniforms and martial air, stepping with the precision of veterans to the drum and fife. There are no students taken under sixteen years of age, and those now entered are fine grown, athletic young men, in the very picture of health. They present a marked contrast to most college students, with their sickly bent forms and cadaverous countenances. This is the result of the outdoor exercise and work which they do. The drill which they go through straightens their forms, and their mental discipline deprives them of the brutal expression which is observable in the mere soldier. We confess a partiality to this department, and Regent Bowman has shown admirable judgment in the manner in which he has organized it. Mr. Bell, the landscape gardener, has supervision of the manual labor department, and he sees that no idle bread is eaten by those under his charge. If any of our readers wish to pass a pleasant hour, let them go out to Woodlands any evening at four o'clock and witness these boys on parade. They can there judge how completely bumpkins can be trained into graceful, stately youths, by the skilful manipulations of Major Arnold and President Williams.—*Lexington Gazette.*

For the "American Farmer."

The Theory of Agriculture.

Editors of American Farmer:

GENTLEMEN: In the October number of your valuable periodical, I notice the *conclusions* of a remarkable essay, by "J. G. McVicar, D. D.—Moffat," on the true theory of agriculture. Such an article when read over carefully several times, and well studied, will repay the reader for at least one year's subscription. The conclusions are of the same kind that I published in the following propositions, that I gave a manufacturing chemist of your city in November, 1860, (who is now out of business,) together with a formula for a manure based on these principles—as the occurrence of the war prevented the introduction of the article—and the great principles upon which it was based, do not seem to be appreciated by the manufacturers. It may be that the agricultural community are at fault here, as the manufacturers will always produce what the people demand. It has become customary to use lime, &c., in large quantities *alone*, and most of our fertilizers contain only one or two elements in sufficient quantity to produce any good effect.

If you think the republication of the enclosed *printed* propositions with *their date and address*, will prove that they have been *sustained* more than six years since in Maryland, and there publicly taught, then they are at your service, with the hope that they may assist in the advancement of rational agriculture.

Yours faithfully,

DAVID STEWART, M. D.

December 29, 1866.

1st. Plants require certain elements to exist in the soil, which are as much their food, as they, themselves, are the food of man—manures should supply the full *proportion* of all these elements, that are removed by cropping. *Ammoniacal Manures.*—Phosphates, and especially super-phosphates, must always be expensive manures when applied alone, and their full influence as fertilizers can never be insured, except by association with a proper proportion of all the other elements of plant food.

2d. *The relative proportion of Nitrogen or Ammonia in Peruvian Guano is too great.*—It uses up the plant food that the soil naturally contains, and consequently exhausts it, and a double quantity of Peruvian guano is required to repeat the effect once produced. This is now generally admitted; see the seven years' experiments of Lawes and Pusey: they call it a self-evident proposition:—That ammonia ceases to produce its full effects as a manure, when frequently ap-

plied to the same land, unless other plant food is combined with the ammonia.

3d. A compound containing more nitrogen than manipulated guano, and presenting all the seven elements of plant food in due proportion, must excel other manures, if concentrated so as to reduce the expenses to a less per cent.

4th. Not only the germination of the seed, but also the more rapid development of the plant, its earlier maturity, and the health and productiveness of the whole plant are insured by the presence in full proportion of all the elements of plant food, as near the seed or plant as possible.

5th. No plant can ever be expected to continue to pay twenty cents per pound for ammonia (the price now paid for it in Peruvian guano,) for each successive crop, and the consequent exhaustion of the soil. Therefore, all fertilizing compounds should be adapted to insure the growth of clover, and forward the permanent improvement of the soil.

6th. A manure that is adapted to insure the success of clover, sown on wheat in the spring, and that can be relied on to refund its cost *in the wheat crop*, is the safest and best investment; because a crop of clover will add more ammonia to an acre in one year, than was ever added by Peruvian guano in seven years.

DAVID STEWART, M. D.,
Chemist of Md. State Agric'l Soc'y,
St. John's College, Nov., 1860. Annapolis.

Compare the above with the conclusions of the learned Dr. McVicar: "*The storing of the soil with food for the plant;* that is, with those concrete air and earth elements of which the plant under cultivation consists. * * * The reduction of the bulk of manure so that it may be carried like seed, and sown with it, as the great object which the enlightened agriculturist ought, at the present day, especially to aim at." The Doctor calls the leaves of a plant its "*air roots*, and the spongioles its earth roots." I would prefer the analogy of the leaves to the lungs of all animals, and the spongioles to the peculiar attachments of the calf to the uterus of its mother, by a sort of foveoli. The question is, whether the analogy should be carried out, viz., whether the earth supplies the stomach of the plant, digests its food, and supplies it in the nascent form *exclusively?* The Doctor seems to favor *this* idea that occurred to me some twelve or fifteen years since; I wrote an essay on the subject for "The American Farmer," and it was copied into the "Annual of Scientific Discovery," entitled "nascent manures." The parenthesis which he introduces in the following sentence, seems to endorse one of the seven propositions I published, (in the New York *Observer*, on the 19th December, 1861, with regard to the action of lime as a manure.) "Even nitrogen, as I believe, where it meets with highly tectonic elements, such as lime and potass, in the presence of oxygen, tends to become concrete along with them, and to form beautiful efflorescences. But whether this be granted or not,"??—I reasoned from the following facts—nitrogen is the congener of phosphorus—it is always present, dissolved in every drop of rain, and may be supposed to give water the properties of an acid. Phosphorus is preserved under cold water; the water may be boiled, the phosphorus melts, but is incapable of decomposing the water, although it has a strong appetite for *both* of its elements, (in order to form *phosphuretted hydrogen* and phosphorous acid,) under these circumstances add a lump of quick lime, and immediately, *in the presence of the lime*, the phosphorus gains power to decompose the water, forming a most *brilliant* and instructive experiment. So I argue that lime may enable nitrogen to decompose water, and form ammonia, or nitruretted hydrogen in the soil, especially in the *presence* of the spongioles of a plant that requires it as its specific food.

DAVID STEWART, M. D.,
Port Penn, Delaware.

For the "American Farmer."

Building Lime Kilns.

PAOLI, Chester co., Pa., Jan. 4, 1867.

Messrs. Worthington & Lewis:

DEAR SIRS: Your correspondent, J. R. G. Christianburg, Montgomery county, Va., in the Jan. number of the *Farmer*, writes for information in relation to lime kilns. Experiments on kilns for lime burning, involve both expense and skilled labour. The general forms of all kilns are similar; it is in the *small differences*, that are found the true causes of magnificent failures and success. To mark those small differences, and to make them plain, would require a volume, as well as a draughtsman. I would, therefore, recommend him, on the *score of economy*, either to employ the skilled labour of his vicinity in the plans in use there, or visit for a week or two some locality where different kilns and plans are in use, and observe accurately the forms and plans most approved of, taking particular care how he endeavours to improve them, unless he has money to lose. An apparently trifling change in forms I have known to produce a total failure.

I would recommend him to visit this neigh-

bourhood, where he can see, in their most perfected condition, more different kilns and modes of burning, in full practice, than anywhere else I know of. They are the result of long experience, talent and capital.

Yours respectfully,

JOHN D. EVANS.

N. B. Paoli is twenty miles west of Philadelphia, on the Pennsylvania Central Rail Road to Pittsburg.

For the "American Farmer."

Improvement of Poor Lands.

MR. EDITOR: In your October number, a correspondent from Dinwiddie county, asks for some advice in regard to making "*permanent* improvement of poor lands." You have probably answered his inquiry more fully and satisfactorily than I can do, in subsequent numbers which I have not seen. Be this as it may, I am willing to contribute my mite towards "making two blades of grass grow where but one grew before." I might further premise, that I have had some acquaintance with the worn-out lands of the South.

The first operation is to plow the ground *well;* subsoil it if convenient; if this cannot be done, plow deep, five or six inches at least; then put on about thirty-three bushels of lime to the acre. Sow with oats, not too thick, not over two bushels to the acre, cover with a spike harrow and sow clover seed *immediately after the drag*, about six quarts to the acre. Make a drag of light brush, and brush in the clover seed. The sowing of clover seed should follow that of the oats before there is any fall of rain to form a crust. Pass a roller over the ground if the soil be light. This is merely the starting point, and very much depends upon its being done well. I have seen plowing done in the South that I could not call plowing at all, it was only scratching; in fact, I have not seen a plow in the South that would cut and turn over a furrow slice as it ought to be done.

When the crop of oats is taken off, let the young clover grow on until fall, without any stock running on it, and it will start nicely the next spring. Let it grow on the next summer until about half the bloom has turned brown, then turn it under with a good plow. Give it another coat of lime, and let it lie until the following spring, then put it through the same course again with oats and clover, and after this crop of clover is plowed in you may seed it with wheat, or wait until next spring and plant it with corn.

Be careful not to sow the oats too thick so as to smother the clover. The object of sowing oats with the clover is merely to protect it from the scorching rays of the sun, but it will nevertheless help to pay expenses. When the land is worn out or naturally poor, the farmer must grow a few crops *first* for the good of the land, before he begins to grow any for profit to himself, and he will find no system so cheap and effective for the purpose, in my opinion, as the one here recommended.

In regard to the lawn, permit me to add a few words, for I delight to look at a well-kept lawn. The soil must be enriched by top-dressing—lime, guano, phosphate, poudrette, or any other kind of manure—it must have a plentiful supply, and that repeated. This is the first grand requisite. The next is, mow, mow, mow, from spring until autumn, whenever the grass is six inches high, and you will soon have nothing growing on it but what ought to grow there—grass of a lively green. A poor lawn is an unsightly thing.

WESTCHESTER, PA., Jan., 1867. A. M.

For the "American Farmer."

Hop Cultivation.

CLIFTON, FAIRFAX CO., VA.
January, 1867.

Editor American Farmer:

Looking over the different numbers of the "American Farmer," I noticed an article on "Hop Culture in England," in the November No. As I have not tried the method mentioned, I can neither advocate nor condemn it; but having planted hops some twenty years ago, in a country where the best hops were grown, (proved by obtaining the highest prices,) I cannot refrain from giving a description of the mode of culture followed there, particularly as it is in direct opposition, in every respect, to the method mentioned in the article referred to.

We considered it immaterial if the land selected was rich or poor; our main object being to select a field well sheltered from north and east winds, with a subsoil of light clay or marl. The field selected, the land was laid off in rows six feet apart, and crossed by other rows also six feet apart. At every crossing a hole was dug (in the fall) two feet square, and from five to six feet deep. In throwing out the dirt, the top soil was laid on one side of the hole, and the subsoil on the other. Early in the spring the holes were filled with fresh horse and cow manure, about one foot and six inches from the bottom. On top of the manures the top soil was thrown, and about two feet of the hole left open for planting. Three weeks after the manure had been deposited in the hole, the hops were planted

and surrounded by the *subsoil*, which, by exposure to the air, sun, frost, and rain, through the winter, had lost its offensiveness to vegetation. In every hole *only one* plant. The first year the vines were tied to small poles, to enable the laborers to clean properly around the plants. The next year, and so on for every year, early in the spring, the dirt was removed from the main root, and *all* side roots cut off close to the main root, and the dirt then put back. As many of the wiltings as required for next spring's planting, were put in ditches one foot deep, kept clean during the summer, and planted the next spring. On the head of the hop-root *only two* or *three* eyes were allowed to grow into vines, the balance nipped off, so that only one pole was required for every hill. These vines grew stronger, made more hops, and twice as large fruits, (I have had them four inches long,) than any other hopvines I ever have seen. As soon as the vines have reached the top of the poles, about twelve feet, their heads are cut off by a knife tied to a long handle. Between the hop-rows were planted potatoes to put the land in good order, and after the potatoes caraway seed, which will bear for three years without replanting, if kept clean and cultivated. By this method I have made as much as $200 per acre, besides the hops. Many may object to this mode of planting hops, as it requires a larger outlay of work in the beginning, but a field planted in this way will remain in full bearing for sixteen to twenty years.

The main object is to produce ample nourishments in the depth of the soil, the nature of this plant being to seek the depth. I have dug old hop plants whose roots extended nine feet in the ground. The object by planting the subsoil around the plant is, to prevent it from forming side roots, which, invariably is the case, if the soil around the plant is rich. It is a very bad practice to cover the roots in winter with horse manure, as it enrichs the land. Either cover them with leaves or straw, and remove in spring, as soon as no more heavy frosts are anticipated.

L. A. Hansen.

Deodorizing Privies.—An occasional application of coal ashes and common soil, to the contents of privies, will do away with the offensive odor arising from them, while it will form a compost readily removed, and of great utility in the production of garden and farm crops.—*Working Farmer.*

☞Pounded glass mixed with dry corn meal and placed within reach of rats, it is said will banish them from the premises.

From Edinburgh Journal of Agriculture.

Effects of Temperature on the Feeding of Animals.

All who are acquainted wtth the habits of our domesticated animals, and who have been accustomed to minister to their wants, will readily know from their external appearance whether they be in the enjoyment of the ordinary comforts of life, and whether they are suffering from the privations of cold or hunger. And if such apply generally to domestic animals, it does so particularly to those that form the subject of this note—viz., our various breeds of cattle. Almost every one is familiar with the crouching position and strong coat of a cow or bullock exposed outside in a stormy day, and are very ready to remark that such exposure tends to waste the flesh off their bones, which is perfectly true; but few take the trouble to consider what portion of the animal's food, even in ordinary circumstances, goes towards the production and maintenance of animal heat within the system, far less to consider the increased quantity required when animals are exposed to extreme degrees of cold. This is, however, a matter of much importance, and far too little thought of. It is much to be regretted that farmers, more than any other class of men, are so backward in adopting principles which scientific men have satisfactorily proved to be of the greatest importance to them, and which might be applied to very many departments of their profession, but to none more directly than to the sheltering and comfortable housing of cattle.

Animals not only require food for nutrition, but also for combustion, or the production of heat within the system. The organized constituents of the animal system, such as blood, muscle, skin, all the cellular tissues, and a large proportion of bone, &c., are all nitrogenous; and hence the necessity of supplying the animal with nitrogenous food in sufficient quantities, in order to increase or maintain, as may be desired, its size and strength. Starch, gum, sugars, oils, &c., contain no nitrogen, and, supplied alone, would only support life for a short time. In respiration, however, much of this oil, sugar, starch, &c., is actually burned, and otherwise undergoes a nice chemical transformation, which, as understood and described by scientific men, is sufficient to account for the production of animal heat; and hence the animal frame has been viewed as an apparatus of combustion.

Although it is well known that oil, starch, sugar, gum, &c., are heat-producing constituents of the food of animals, they are also the chief elements in the production of fat, and by far the

most expensive and not least important portion of food. Were animals to be supplied with nitrogenous food only, they would be quite destitute of fat. They would have large bones and muscles, lean flesh, and, although possessed of plenty of hide and hair, could not exist in a cold climate. These facts ought to be fully understood by all who undertake the feeding of cattle. They have been much overlooked in almost all experiments as to the progress cattle will make upon different kinds of food. Stock ought to be kept, if possible, in a temperature sufficiently high to prevent a wasteful expenditure of animal heat by radiation into the atmosphere which surrounds them, otherwise an extra quantity of the most valuable portion of their food will be required to produce heat in lieu of that lost by radiation; for it has been satisfactorily proved that the amount of nourishment, or at least the amount of carbonaceous and hydrogenous elements, such as oil, sugar, and starch, required, are proportionate to the expenditure of heat generated within the system, whether that expenditure has been accelerated by breathing and increased perspiration by exercise, or of excessive radiation occasioned by the relatively low temperature of the atmosphere in which the animal lives and moves.

Want of attention to the power of external heat or to the effects of temperature on cattle—fattening animals in particular—have utterly vitiated multitudes of experiments respecting the feeding properties of different kinds of food, and occasions throughout the nation a stupendous amount of constant wastefulness of winter food. A farmer could have no more profitable or interesting study than the wonderful organization of the animals he is so desirous of bringing to the utmost value and perfection. The wonderful and intricate process of assimilation of the food by the harmonious arrangement of the whole animal structure is particularly instructive and important; and the careful study of it might be turned to profitable account. Were this carefully studied, we would no longer see cattle of all ages, of all classes, and in every condition of comfort, fed in that indiscriminate manner which so much prevails. Every farmer ought at least to know that there are two great classes of compounds of which the food of cattle must consist, viz., that containing the saccharine and oleaginous substances, which are necessary for the production of fat and animal heat, and the albuminous or protein compounds, which are necessary for the production of flesh and muscle, &c. He ought to know also to what extent these substances generally prevail in every plant cultivated as cattle-food. Such a knowledge would enable the farmer to see the propriety of supplying young and growing cattle with a different diet from that supplied to fattening stock and milk cows, and aged or matured animals, with one differing from those given to both the former classes. It will not do for a farmer to say that he supplies his cattle, young and old, with the same description of food, and that all are thriving alike, and quite to his mind; because if he give food in abundance, such may really be the case, but a great daily waste will at the same time be taking place, which might well be avoided. We know that cattle will, and do, consume large quantities of food not required for assimilation, and, of course, that portion not required will be rejected in the form of excrement; in proof of which numerous instances might be given.

It has long been known that the excrements, both solid and liquid, of young stock, are much less valuable than those of mature age, as the nitrogenous and phosphatic portion of the food of young and growing animals will be almost wholly taken up for the production of bone and muscle, &c., and their excrements will be found almost wholly destitute of such; while it is equally well known that these two valuable manurial ingredients will abound largely in the excrement of full-grown animals, and might have been dispensed with, in some measure, in their food, as they can be procured as a manure at a much cheaper rate. In like manner, cattle kept in a very low temperature will consume a very large quantity of food, which, if highly nitrogenous, will be almost wholly rejected in the excrement, being unsuitable in the production of heat; but even if oleaginous food was supplied, the quantity which would be consumed would be much greater than if the animal was kept comfortably warm; for says Professor Anderson, of Glasgow, "We know a certain quantity of food is capable, under certain circumstances, of producing a certain quantity of fat; but if the temparature falls, an additional quantity of fuel is required to sustain the animal heat. And science has shown that the elements so consumed or burned off are exactly those which, under any other circumstances, would go to the formation of fat. It is obvious, therefore, that if we keep the animal warm, we do what would otherwise be done by a portion of the food with which we supply it. And we might be inclined to say that the warmer it is kept the better; but, practically, there is a limit to this. There is a certain range of temperature which is natural to the animal, and though, in the process of fattening, we place it, to a certain extent, in an

unnatural condition, we cannot carry this too far without producing various derangements of the system, which would speedily end in positive disease and death." We have also in support of the same law the testimony of Liebig in stronger language than that of Professor Anderson. He says, of man, "If we were to go naked like certain savage tribes, or if, in hunting or fishing, we were exposed to the same degrees of cold as the Samoyedes, we would be able with ease to consume ten pounds of flesh daily, and perhaps a dozen of tallow candles to the bargain, as warmly-clad travellers have related with astonishment of these people; we should then be able to take the same quantity of brandy or train-oil without bad effects, because the carbon and hydrogen of these substances would only suffice to keep up the equilibrium between the external temperature and that of our own bodies." In some parts of North America the natives are so well aware of the importance of using fat largely in their food during the cold season, that they also, in extreme seasons of cold, mix fat broth largely with the vegetables they give to their cattle; and the Russian boors, as well as the natives of Iceland, Faroe Isles, Orkney, and Norway, have long known the advantage of using dried flesh and fish ground down and mixed with oats or other grains in the feeding of their horses, so as to render them capable of resisting the severity of the trying winter seasons which prevail in those regions. But our remarks are intended to apply chiefly to cattle. It may be noticed that the hardier breeds, such as the Kyloe or West Highlander, and the Galloway, will live and thrive in a climate where the softer breeds, such as the short-horn and Ayrshire, would pine and starve. But in the case of the most hardy breeds, warmth and shelter tell very forcibly upon their weight and early maturity. No practical or experienced man would recommend that young cattle during the winter season should be pampered or kept close and warm. Such stock should have a short run outside every dry day. Nothing can be more beneficial to young animals than a gallop upon a piece of suitable ground; it will excite the healthy action and full play of the lungs, and increase the growth and strength of the muscles, and in every way promote the vigour of the constitution. But on no account should stock be kept out in cold weather any longer than they seem to enjoy it, and keep moving about. And when housed, they should be kept in dry, well-ventilated, comfortable stalls or sheds. Fattening animals during the winter season, of course, require to be constantly tied up. Turning such stock out for exercise would certainly be injurious; as when they get into forward condition they lose much of their former activity, and could not take exercise sufficient to keep them in heat without risk of injury to themselves: and besides, they would become more unsettled in their stalls. The temperature of a feeding-byre ought to be carefully attended to, and maintained at as uniform a degree as possible. That best adapted for short-horn and cross-bred cattle will be found to be about 55° Fahr.; but all who are acquainted with the care of cattle are quite aware of the difficulty of maintaining a proper temperature consistent with necessary and proper ventilation. And, however absurd the idea may at first appear, the day is not far distant when properly constructed feeding-byres will have the temperature maintained by artificial means. The cost would be but trifling, and ventilation could then be more perfectly carried out. These principles are receiving daily more and more attention from the most intelligent of farmers; and it is hoped that such will continue to be the case. There is no profession which can be compared in importance with that of agriculture, for to it belongs the production of food for man and animals. No other profession practised by man includes a greater variety of operations, or involves a greater amount of scientific and correct principles, than that of farming. Yet almost every other profession of any importance is regarded as much more of an art, much more technical and complex, and requiring far higher qualifications for its successful prosecution. Nothing could be more erroneous than such an idea; for from the moment the farmer casts the seeds into the ground until his crops are ready for ingathering, it is important that he should watch every progressive stage of the plant, and be prepared to aid and govern natural laws by the application of scientific principles. And this does certainly apply even more so to the breeding and management of stock, so that this country may continue to hold that advanced position it has attained amongst other nations in the production of prime beef; and we hesitate not to say that from the principles which ought to regulate the adaptation of breeding animals to one another, and those by which the feeding of young and growing animals throughout the various stages of their growth should be directed, to those which ought to regulate the cooking of the carcass, there are none of more importance than a proper regulation of ventilation and temperature in all the different modes of housing cattle; for there cannot be a doubt but that to the neglect of

these latter principles may be attributed the origin of all diseases of a typhoid character, and also the serious aggravation of many others. We are unwilling to admit that the *fell* disease which has recently menaced the whole cattle tribe in this country, has in this case broken out spontaneously within our shores; but notwithstanding its perplexing and subtle movements, passing by some of the most filthy and worst-ventilated cowhouses in crowded cities, and attacking healthy herds many miles isolated, we have only to look at the nature of those countries where rinderpest is the perpetual scourge of the stock-farmer, where the poisoned atmosphere arising from decomposing vegetation in those vast marshy plains is known to produce and foster the dreaded pestilence—to be convinced of the dangerous influence, imperfect drainage, and bad ventilation, has on all diseases of a typhoid or inflammatory character, and that such diseases will break out spontaneously when animals are confined continuously in a poisoned atmosphere.

SECURE THE LEAVES.—The woods are now full of leaves. Indeed they appear to be more abundant than ever, but farmers do not value them as highly as we think they should. For barnyards especially they are profitable to haul in. They are obtainable too when there is little pressing work on hand. Gathered up in heaps they can be readily loaded in carts and wagons with close shelvings by using either a cloth some two or three yards square, or with a wooden rake and the arm. Hogs are very fond of them for litter, so are cows; and for compost they are excellent. As oat straw is now usually fed to cattle, and rye straw commands a high price in the market, there is nothing left for the purpose of littering except wheat straw. Hence forest leaves should be held in higher estimation than they commonly are.—*Germantown Telegraph.*

APPLES AS FOOD.—The importance of apples as food has not hitherto been sufficiently estimated or understood. Besides contributing a large proportion of sugar, mucilage, and other nutritive compounds in the form of food, they contain such a fine combination of vegetable acids, extractive substances, and aromatic principles, with the nutritive matter, as to act powerfully in the capacity of refrigerents, tonics, and antiseptics, and when freely used, at the season of ripeness, by rural laborers and others, they prevent debility, strengthen digestion, correct the putrefactive tendencies of nitrogenous food, avert scurvy and probably maintain and strengthen the power of productive labor.—*Liebig.*

Grape Culture.

BY A. S. FULLER, RIDGEWOOD, N. J.

Read before the Pennsylvania Horticultural Society, November 6th, 1866.

LOCATION OF VINEYARDS.

That the location of a vineyard is often the cause of success or failure, no one who has investigated the subject will deny; but that every location which is pronounced to be favorable, even by those who are supposed to be good judges, is so, in fact, is not equally true; for there are many things which cannot be learned, except from experience.

Elevated positions, with a free circulation of air, for warm climates, and elevated, protected ones for cold latitudes, are to be preferred. There is more danger from frosts in the latitude of Philadelphia than that of Albany. There is also more danger from mildew, sun-scald, and insects in the former than in the latter. But in one the late grapes may be successfully grown, while in the other none but the earliest are valuable.

Therefore, it is apparent to every observer that specific, experimental knowledge is required more than that which is speculative or theoretical. I do not wish by these remarks to convey the idea that grape culture must be confined to prescribed limits, nor that particular towns, counties or States, are the only locations where vine culture can be made profitable; but that there are certain locations in every section of the country, which are better adapted to it than others.

To determine these locations requires observation and some little experience.

I now refer only to sections where grape growing is to be made a specialty, and prosecuted on a large scale.

Declivities of hills and mountains have been, in all ages, chosen as the best sites for vineyards; and probably, all things considered, they are better adapted for the purpose than plains.

In such situations, a more perfect circulation of air is secured; besides, in sections where increased temperature is desirable, it can be obtained by planting on hill-sides inclining to the south.

In the Northern States such situations are preferable, but are not always absolutely necessary for success. We suspect that the time is not far distant when every one who owns a rod of ground will grow his own grapes, whether his location is favorable or unfavorable. If the soil is unsuited, he will remedy the defect, and overcome other obstacles by skill and perseverance.

The question of soil is another which is open

for debate, and is likely to be for some time to come; for all the theories and speculations of wise-acres are so often set at naught, that one often doubts if there be any really practical rules or facts which may be guides to the novice in selecting a soil for a vineyard.

In one section we find vineyards planted in a stiff clay, producing abundant crops; in other sections similar soils are found to be utterly worthless for grape growing. Just so it is with all other kinds of soils—sandy, gravelly, or loamy—in each of which we find vineyards that are successful, and others that are failures. We have, therefore, to judge from the majority, and this, I believe, is on the side of a calcareous, gravelly, or stony soil. The most successful vineyards in our country are in the limestone regions, although there are a few that do finely in soils of an opposite character.

The grape requires a firm soil, not too heavy or too light. Many sandy soils are so light, that too much air penetrates, and not sufficient resistance is offered to the growth of the roots to keep them healthy.

One ancient author says, that the vine-roots require labor to strengthen, and doubtless it is true.

If the soil is not deep, make it so by plowing or trenching, for there is no one operation that will add so much to the healthy growth of the vine as a deep and thoroughly pulverized soil.

There are but few locations where it will be necessary to trench the soil four feet deep, as is sometimes recommended; but there are few soils that do not require deepening to twelve or eighteen inches.

If the soil is not naturally rich, it should be made so before planting; for we cannot expect a growth of wood or fruit, unless the material to produce them is in the soil.

Over-manuring is nearly as great an abomination as the want of a proper amount.

The application of a large amount of fresh manure will often cause disease and feebleness in the vine to as great an extent as a poor and unfertile soil. To produce fine, healthy vines and fruit of good quality, a deep but only moderately rich soil is required.

I am quite certain that many vineyards have been ruined by a too liberal application of manure, while many others have failed for want of a proper amount.

When vines grow rapidly, say six to ten feet per year where they are allowed to grow unchecked, it is all that is necessary. I have often seen three year old Delawares making fifteen to twenty feet of growth in one season; but such wood is seldom, if ever, as well ripened or healthy as when one-half of this amount is produced.

It is, therefore, important that those who are new beginners in vine culture should use largely their own judgment, instead of following implicitly the directions of any one who is not on the ground to examine and ascertain by experience how much or how little manure is required.

One writer will tell you that five hundred or one thousand two-horse wagon-loads of compost are required per acre, and all this may be true with him and on his particular soil (if so, we pity him); but upon your own, one-half this amount might be ruinous.

Again, there must be discrimination made between varieties. One will require (in fact, demand) a very rich soil, while another would be almost uncontrollable under the same conditions. Delaware will starve where a Concord will thrive, and Taylor will take what the Concord rejects and flourish splendidly. Therefore, I have long since come to the conclusion that there was very little positive knowledge connected with grape culture, and what there is, was, and is obtained by local experience.

MANURES.

What kind of manure is the best? is the ever-recurring question. The only general answer which I am able to give is, the kind which you can get. I prefer, for general use, barn-yard manure, composted with two parts muck to one of manure. This compost, for sandy soils, is as good a manure as has ever been invented. For a heavy loam or clay soil, the order might be reversed, and two parts of manure to one of muck, always adding one to two quarts of bone-dust to each vine at the time of planting.

There are many kinds of concentrated manures that are good, and I have experimented with many of them, but, so far, with the single exception of bone, I prefer the barn-yard compost, ton for ton.

Others think differently, and practice accordingly, which only proves the truth of my previous remarks, that only local experience can be depended upon.

CULTIVATION OF VINEYARDS.

Clean cultivation, frequent stirring of the surface of the soil, or, in very light, sandy, or gravelly soils, applying a liberal mulch.

My personal experience or knowledge will not warrant me in advising anything additional, except as a warning, or what not to do. Do not grow any vegetables or fruit-bearing plants

among your vines, no matter who may advise you to do so. If you cannot afford to give up the soil to the vines, you had better not plant them.

To what Extent shall we Employ Artificial Manures?

Some recent inquiries in regard to artificial manures—where they may be obtained, what their qualities are, &c.—lead us to a careful consideration of the question which we have put at the head of this article.

It has been said that he is a *wise* man that profits by his own experience, while he who profits by the experience of others is a happy man—the fool alone refusing to profit by either. We therefore turned to the experience of some of our best agriculturists with a view to obtain by a cheaper method than actual experience the information desired.

Naturally we directed our attention to England. We thought that the best country in the world from which to find out what we wanted, would be that in which the greatest amount of money is spent per acre on the land. Nor were we disappointed. But what was our surprise to find that some of the best farmers in England buy very little artificial manure.* And it further occurred to us that those men, who as tenants commence farming with a capital of $75 to $125 per acre, and obtain by the most skillful management a return of only 10 per cent. on this investment, while a very slight deviation from a judicious system entails not only a loss of profit, but of capital, must be men whose practice, if not worthy of imitation, is at least worthy of consideration. Many of these men use no artificial manures. A Scotch writer in the "Agricultural Gazette," says that super-phosphate seems to have lost its power with him, and does not do well on his land, though a few years ago it produced marvellous results. And another gives his experience thus: "My bailiff says that guano does no good now—you cannot see where it goes, whilst fourteen years ago the smallest dusting of it showed a marked effect." He cannot be made to understand that the land was then undrained and full of poverty, (like too much now in our neighborhood) whereas now drainage, cultivation, and plenty of manure from stock, have filled it with an enduring fertility, which renders the action of guano comparatively inoperative.

He further says: "I know a farmer within a few miles of me, who always allows his 1,500 fattenning sheep one pound of beans per diem when feeding in the field; the consequence is a general and progressive enrichment of the soil, which almost compels him to take an extra crop to tame the land. In my own case I generally, on one field, annually, which has become *saucy*, take five or six quarters of Rivett wheat per acre after a similar crop of ordinary wheat."

Now, we know that Liebig offers a very plausible explanation of all this—an explanation which has been very generally accepted. It is this—that when we use guano or super-phosphate, the land is stimulated to take up all those other elements which are available as food, and until these elements are restored, a good crop is impossible, the want of any one of the inorganic food elements being fatal to success. That this is true to a certain extent, we have no doubt, but it does not apply to the case we have just mentioned. In these the implied proposition is that while on poor land the application of guano and super-phosphate produces most marked results, on rich land they do not produce a corresponding increase in the crop. There are two reasons for this. The first is that it is always more difficult to ascend from seventy bushels per acre to eighty, than it is to ascend from 50 to 60. It is something like the steamboat—if 100 horse-power will drive a boat five miles per hour, 400 horse-power will be required to drive it ten miles in the same time.

The second reason is that the artificial manure has very little influence over the physical condition of the soil. That this is true, there is no doubt, and so well is it understood in England, that at Earl Fortescue's the following plan is adopted: One man, having a dibbler of the ordinary form, about the size of half a large pine apple, presses his foot on it, and leaves a hole large enough to contain one pound or pint of animal excrement, (free from straw.) A womam follows with a box of manure and a half-circular trowel, which contains just a pint of manure, which she deposits in the hole made by the dibbler. Another woman, with a supply of super-phosphate of lime, mixed with fine mould or ashes, uses a large extinguisher,* with a

* This statement is not contradicted by the fact that the total amount of artificial manure annually used in Great Britain is steadily increasing year by year. It is unquestionably true that the use of these manures is yearly becoming more general, but at the same time some of the best British farmers, giving up the use of artificials, are depending more and more upon the home production of manure.

* As in these days of petroleum some of our readers may have forgotten the old *extinguisher*, we would say to our younger readers that it was a hollow tin cone, which was put over a candle to put it out. The "extinguisher mentioned in the text was doubtless a large hollow tin cone, somewhat like a cornucopia. A figure

handle, which she presses into the dung, and then empties its contents into the opening made. This extinguisher contains three drachms of super-phosphate of lime mixed with fine earth and ashes. A child then follows and deposits a pinch of seed in the seed-bed of the extinguisher, pressing it gently in, and if the adjoining earth is fine, pushing a little over it.

The combined operations, though tedious in description, are rapid and easy, as I can testify. The result is an unfailing plant of either mangold-wurzel or Swedes, without regard to the condition of the surrounding soil or weather. The seed-bed derives moisture from the manure, and the plant, having its food at immediate command, grows rapidly and luxuriantly.

But when applied alone, the artificial manures are not in sufficient quantity to have any great influence upon the physical character of the soil; that is its mechanical texture and its relations to heat and moisture. Hence to produce the best results, we must depend largely on barnyard manure, and this can only be obtained cheaply by manufacturing it upon the farm.

Of course, under ordinary circumstances, few farmers can afford to employ both to any very great extent, and in many cases the "artificials" have an obvious an important use. Thus where a farmer has not capital to obtain much stock, he may be compelled to procure guano, or the super-phosphates, in order to obtain results which will pay the cost of working the land. The market or truck gardener, too, the value of whose crop is proportionally very great, may use artificial manure either alone or in combination with barnyard manure, to an extent which would be imprudent in the mere producer of wheat, corn or pork. For ordinary farmers, barnyard manure must ever remain the great reliance.

An interesting experiment would consist in attempting to raise the largest possible crop by means of, first, guano; second, good barnyard manure; third, both combined—the amount of manure being in each case unlimited, and the culture in all cases the same. A careful note should be made of the character of the soil, as it is well known that concentrated manures, such as bone dust, are frequently much more efficient in light soils than in clays. This obviously depends upon the fact that in such soils the physical conditions are already suitable to the growth of plants, and all that is required is food, while in the case of the heavier clays, food is not so much wanted as tillage. We are aware that to the above, as to all other general propositions, are marked exceptions, but we believe that the great body of our agricultural experience coincides with the statements just made.—*Country Gentleman.* ARATOR.

of an extinguisher is to be found in the new illustrated edition of Webster under that word.

Action of Lime on Soil.

The distinguished chemist, Boussingault, has just read before the French Academy of Sciences a paper on the employment of lime in agriculture. It has not yet been published, but M. Barral gives the following as the substance of it, which we translate from the *Journal d'Agriculture Practique.—Ex.*

"Lime introduced in an arable soil very quickly sets at liberty a certain quantity of azote in the state of ammonia; the azote elements were before united in insoluble combinations, not assimilable to plants—the action of the lime sets them free, and permits a part of the capital buried in the soil to be utilized for the next crop. If this was the whole effect of lime, of which the experiments of Boussingault afforded evidence, small doses of it at once ought to be counseled, because the quantity of ammonia produced does not increase in proportion to the quantity of lime used. But as heavy limings produce incontestible effects in certain case, it must consequently be admitted that lime exerts an action of some other kind upon the elements of the mold. Boussingault thinks that certain mineral matters, such as potash and silinc, may be liberated in the soil by the lime; that other substances, injurious to plants are destroyed or modified by the same agent, and that to these effects is added moreover a physical action, changing the constitution of the land. The action of lime is thus excessively complex, and its good effects can only be explained by studying attentively the special circumstances under which they are produced. The grand fact proven by the present researches of this agricultural *savant* is that there exist in mold, as well in the form of organic matters, a host of substances completely inert for vegetation, until the moment when some proper agent renders them assimilable by plants. The continuance of experiments upon the method devised by Boussingault can alone clear up these excessively complex facts, and point out to our agriculturists the most effective processes. The discovery of methods which conduct to truth is often the greatest service that can be rendered to science and to art.

☞The man who takes no pains to make or save manure, will not find farming a very profitable business.

On the Action of Salt on Peruvian Guano.

Dr. Voelcker, in a recent article in the *Royal Agricultural Society's Journal*, has the following:

"A distinct proof is here given that common salt has the power of liberating ammonia from soils that have been highly manured from rotten dung, Peruvian guano, and other ammoniacal manures, which, in sandy soils especially, exist in feeble combinations, that readily undergo decomposition when brought in contact with a solution of salt. In the case before us, a portion of chloride of sodium acted upon these feeble ammonia combinations, producing on the one hand soda, which became fixed in the soil, and on the other, chloride of ammonia, which passed into solution.

"This analytical result throws light on the function of salt in agriculture. It is well known that salt is most beneficially applied to light land after a good dressing with farmyard manure, alone or in conjunction with Peruvian guano, and that its application under these circumstances is particularly useful to wheat and grain crops in general. Practical experiments on a large scale have shown, indeed, that by salt alone a large increase of grain was produced on land in good heart—that is, that had been previously well manured. In this case the application of salt evidently has the effect of liberating ammonia, and rendering it available for the immediate use of our crops, which we know from experience are much benefited by it. On land out of condition, salt must not be expected to produce such a favorable effect, and as this manure no doubt is sometimes put upon land exhausted by previous cropping, in which therefore, it does not find ammoniacal compounds upon which it can act, one reason becomes evident why salt is inefficacious as a manure in some cases, whilst in other, its beneficial effects are unmistakable. Peruvian guano and salt is a favorite dressing with many farmers, and justly so. It has been supposed by agricultural writers that the benefits resulting from this mixture are due to the property of salt to fix ammonia. I have shown, however, elsewhere, that good Peruvian guano does not contain any appreciable quantity of free ammonia, and, moreover, that salt does not fix ammonia. Whilst theory has erred in ascribing to salt a power which it does not possess, the practice of mixing guano with salt is one which can be confidently recommended. So far from fixing ammonia, salt rather tends to liberate and disseminate through the soil the ammonia contained in the Peruvian guano applied to the land, which then becomes fixed by the soil."

Saving Manure, Subsoil Plowing, etc.

The manure and offal of the farm should be placed in a cemented inclosure; this inclosure should communicate with a cistern; the urine of the cattle should be collected in the cistern and from time to time pumped over the inclosure. In preparing the manure heap, to every twelve inches of dung cover with four inches of earth; the best earth is ditch scrapings; the earth should be aluminous. Continue until the inclosure is filled. The manure should be thrown out of the inclosure before using, and after being well turned over can be scattered over the field like poudrette, or the whole can be reduced to liquid and used in that form. Four or five bushels of lime per acre should be spread over the land every third year, the fall being best time. Early in spring sow two to three bushels salt over the limed field; this treatment alternated with plowing in clover, will keep the land in a condition of continual improvement will lessen weeds, worms, blight, rust, and increase and sweeten the productions of grain, hay, fruit, &c.

Underdraining and subsoiling a worn-out field will renovate the land, enabling oxygen, the life of all things, to find its way to the roots of the plants. Too much moisture is looked upon as injurious; where the oxygen of the water is absorbed by plants, that water is like air in a close room, the oxygen of which is converted into carbonic acid gas; the result of this change is death to the persons occupying such rooms. Water cannot be supplied in too great abundance to plants, provided it contains oxygen. A plant immersed in an air-tight jar, absorbs through its roots all the oxygen, if fresh oxygen is not admitted the plant languishes and dies.

The roots of plants absorb oxygen, the leaves carbonic acid gas; feed the roots, and the leaves will take care of themselves.—P. J. H.—*Working Farmer.*

PLASTER OF PARIS.—We have repeatedly suggested, of late, the importance of care and nicety in the bedding and carding of stock at this season of the year, and the use of sufficient absorbents in the shape of dry muck, loam or sand, not only to promote the comfort of animals, but also to add materially to the extent and value of the manure heap. We want now to add to the advice already given, the use of more or less plaster of Paris to be sprinkled over the floors and lean-tos where cattle are tied, as a means of purifying them and of absorbing and fixing the ammonia which might otherwise be lost. A few barrels of good fresh ground plaster will go a great way in keeping down the strong odor

which so often arises and escapes from the cattle stalls, and which is especially observable in the morning. This odor, or ammonia, is one of the most valuable products of the manure, when properly saved. Plaster not only purifies the atmosphere, but performs valuable services in saving manure. Use it freely under the hen-roosts also every few days.—*Mass. Ploughman.*

How to Make a Lawn.

The preparation of the soil for a lawn can hardly be too elaborate. It is cheapest to do the work thoroughly at the outset, to save disappointment and expense hereafter. If the ground is inclined to be wet we should say draining was essential. If it is gravelly or sandy, that is a soil that does not suffer from standing water, that expense might safely be omitted. Next we should say trenching would be very important, and if that amount of labor and expense seems too great, possibly the subsoil plow might be substituted, though trenching thoroughly would be most effectual. Before beginning either of these operations we would cart on a liberal supply, say not less than four cords of the best of manure per acre, spread it as it is dug or ploughed in, and at the same time put on plaster of Paris at the rate of five hundred pounds to the acre. We would trench fifteen to eighteen inches deep. To do this rightly a trench should be opened on one side of the proposed lawn, say two feet wide and a foot and half deep. Wheel the soil thrown out of this trench to the farther side and dump it along where the last trench will come; it will be needed to fill that up with when you get to it. Then open another trench alongside of the first of the same width and depth, throwing the earth into the first trench, and at the same time mixing it well with manure and plaster, and so continue with the whole lawn.

That is the true and lasting mode to go to work to make a permanent and satisfactory lawn, and it will leave the soil in a condition to withstand the effects of our terrible droughts, as no other mode will. Now you have a smooth and even surface, with your corn stumps all buried in the trenches, together with all sods and coarse lumps of earth; the stones, if any, having been left on the surface and removed. The manure which was trenched in may have been common barnyard or stable manure. If the soil is naturally stiff we would not be particular to get it into a finely rotted condition, as the coarseness of it would help the mechanical condition of the ground. If, on the other hand, the soil is light and open enough already, we should prefer to have fine and well rotted manure.

Now you want, also, some manure near the surface. You may use either Peruvian guano, spread on at the rate of 150 or 200 pounds per acre, and immediately harrowed in, or good super-phoshpate at the same rate, mixed with an equal amount of plaster. These manures may be spread and worked in with the grass seed, if preferred, though we would put them on first. The work might be done, and the manure applied, as soon as the ground is fit to work in the spring.

You are now ready for the seed, and it is important to get the right kinds. You want no coarse herbage, nothing that will not endure close and repeated cropping. The perfection of a lawn is to have a fine, velvety, close and soft turf, and the object is to attain that end as soon as possible, and have it last when you get it.

If it were August or September, when you were proposing to sow the seed, instead of spring, we should say use no grain with it. Success would be more sure without it. But with our annual liability to droughts, we should not venture to sow in spring without, at the same time, providing some protection which some grain crop affords. You may sow about three-fourths of a bushel of barley, or spring rye. Either would be better than oats, or you may sow millet at the rate of ten to fifteen quarts of seed to the acre along with the grass seed. You want to sow the grass seed a good deal thicker than you would for an ordinary seeding down.

Now as to the kinds and quantities. Get half a bushel of Kentucky Blue Grass, half a bushel of Sweet Scented Vernal, one bushel of Red Top or Fine Top, and about six pounds of White Clover. If you don't mind a little expense, you have time to send by your seedsman and get some crested Dog's-tail and some Sheep's Fescue or Hard Fescoe; both are excellent. You will find various mixtures for Lawns recommended in *Flint's Grasses and Forage Plants*, the only trouble being to get some of the kinds best adapted to this purpose without ordering them from abroad. We would exclude Timothy because it does not endure close shaving, and is coarse. Common clover is coarse, and is annual.

Sow as evenly as possible, and rake in with a short toothed iron rake, and roll carefully, with a heavy roller, if the land is light. The grain will be thin, of course, and will not interfere much with the young grass. In about four or five weeks, or when the grain is a foot high, cut it not very close, or say three inches from the ground. It will start again and grow rapid-

ly, if you didn't let it stand too long before cutting the first time. In three or four weeks it should be cut again, and in August or September a third time.

After once fairly started it will be managed by top-dressing, rolling, and frequent cutting. The proper top-dressing for a lawn is old, finely rotted manure, spread on evenly and raked in with fine toothed iron rakes, working the rake back and forth, so as to get the fine manure down around the grass roots, and all the coarse parts of the manure taken off again directly and removed from the lawn. No coarse manure should remain on the lawn, and no manure should remain to make coarse and uneven patches. Finely rotted manure worked in as indicated, will give you a lawn soft as velvet in two or three years, and one that will be beautiful from the first. Then, after a turf is formed, shave it with a lawn-mower once a week, or ten days, during the summer.—*Mass. Ploughman.*

Dutch or Edam Cheese.

The *Scottish Farmer*, in the course of one or two recent article on this subject, remarks:

When our Scottish farmers read of the enormous sum annually expended by France in importing cheese from Holland, let them remember that, substituting Great Britian for France, the same folly is chargeable on us. In 1862 we imported 703,909 cwt. of cheese, of the computed real value of £1,550,094, and in the same year 1,037,371 cwt. of butter, of the computed real value of £4,923,100. If, fired with the ambition of provisioning the marines with Dutch cheese, the British farmer resolves on making it like the long-keeping cheese of *Edam*, there is nothing to hinder him.

The process is simply this: The milk is generally curdled by means of muriatic acid or spirits of salt, and great care is taken to extract the whole of the whey, and to prevent fermentation. The curd is repeatedly broken and pressed, and before being made up in the round shape in which it is usually sold, the broken curd is well soaked in a strong solution of common salt, in water, which effectually represses fermentation, and so insures that the cheese will keep long, even in warm climates. When the cheeses are finally pressed, all the remaining whey is washed out with the brine, they are rubbed with the salt over the outside, and set aside on shelves to dry in a cool place.

A late French writer is quoted, who contrasts the mode of cheese making in vogue in France, with that of the Hollanders, very much to the advantage of the latter. We condense the following:

The making of cheese has been carefully studied by the Dutch, as is evident from the processes employed; from the cleanliness of all the utensils, and the manipulation of the milk—from the precautions in regard to the temperatures of the curds and the atmoshpere—from the ways of preparing the curd, and the manner in which it is kneaded, placed in moulds, and so pressed as to be deprived of all its whey—from the mode in which the cheese is treated until presented for sale. Their operations are uniform, regularly carried out, following the corresponding season of each year; the effect of this considered procedure being the invariable production of the same results.

The Dutch cheese never weighs above 4½ lbs.; 15 litres milk (about 6½ gallons) gives a cheese of 2 kilogrammes (4 lbs. 6½ oz.) on its removal from the press. It is then laid upon spars in a well-lighted, well-ventilated dry room. In this room, which is a kind of drying room, the cheese loses part of its moisture, which, no doubt, helps to give it the propriety of being kept long for vitualing. We can every day make a Dutch cheese weighing not more than 2 kilogrammes (4½ lbs.,) though we should not have more than 15 or 16 litres of milk (about 6½ gallons.) This would be a great advantage to small farmers, who, being able to keep but a small number of cows, cannot possibly make cheeses of 110 lbs., according to the custom of the country.

PROFIT IN BEE-KEEPING.—As a proof that bee-keeping, as a business, pays as well as or better than any branch of horticulture, I would state that I am now offered for my bees, $1500 cash. It is not yet six years since I paid $20 for the four stands with which I commenced the business. I have never bought a hive since. So this is the increase of *my capital* in five seasons, saying nothing of the bees, honey and wax sold in the meantime, or the pleasure derived from the business.

Now that I have so many hives, I find the profit increasing every year, without requiring more time and labor than I bestowed on a few. So far from there being any danger of over stocking, I find that my bees have done better the two past poor seasons than many have done where there were but a few hives kept in one place, and I am convinced that where they are managed rightly, hundreds of colonies will do well where one will. To accomplish this, however, it is indispensable to have them strong and vigorous in spring, that they may take advantage of the whole honey harvest.—*Ellen S. Tupper in Iowa Agricultural Report.*

Latakia Tobacco.

This new variety of Tobacco may not come up to the full measure of the praise here given it, but it may be well worth while for our Tobacco growers to make a small trial of it. Our friends, Messrs. Evans & Co., at York, can furnish the seed in small packages.—EDS. FARMER.

Some months since an article appeared in the papers regarding the Latakia or Mount Lebanon tobacco seed, which had been brought from Palestine by Bayard Taylor. We were recently shown a letter from a gentleman in New Jersey, who had grown a small crop of it. He goes into ecstacies over its good qualities. He says it is entirely different from any other sort ever grown on this continent. It has a short, yellowish green blossom, borne in dense clusters. The leaves are not quite as long, but more than twice as broad as the Connecticut Seed Leaf, of an egg shape, and have petioles or stems which other varieties have not. The stalk is very thick, ridged, and viscid. The leaves are of a firm, velvety texture, a beautiful dark green color, and when they ripen assume a golden yellow tint, and fairly sparkle and glisten in the sun. At the same time they exhale a delicious odor, similar to that of the Marsh Magnolia, and when dried, very closely resemble in fragrance dried rose leaves.

"Of course," the writer says, "my little crop of leaves are not yet cured—indeed hardly dry—yet the flavor is so delicious when smoked, even in this state, and the effect so delightful—exhilarating without intoxicating or nauseating—that I am rapidly acquiring a distaste for other varieties. Competent judges who saw my plants while growing, told me that it would outyield all other varieties. It grows and comes to perfection in a little more than half the time required for other sorts. My seeds were planted about the last of June, were an inch high in two weeks, transplanted in August, and yet ripened their seeds perfectly. Every lover of the weed who has had a puff or a snuff of the smoke, commends it highly."

He thinks it incomparably better than the finest Yara or Cuba ever grown, and it does not, like the latter, deteriorate by being grown here, but retains all its delicious characteristics perfectly. He says, until Mr. Taylor procured the seed and raised a small garden crop last year, and published an account of it, it was almost entirely unknown in this country.

He thinks it will ripen two full crops of leaves in a year. After the first crop is ripe and cut the suckers will shoot up, and long before frost perfect another full crop of "fragrant golden leaves."

We are assured by good authority that there is no mistake about the quick maturity of this variety, and if half the account of its other good qualities be correct, it will prove a great acquisition. Our Western tobacco growers should make a trial of it.—*Farmer's Advertiser.*

☞ The *Richmond Examiner*, regarding manufactures in North Carolina, says: "The State is wide awake. Fayetteville has always been a manufacturing town, and before the war there were over a dozen cotton factories there, and in that vicinity. At Raleigh a factory is to be built for the manufacture of woolen and cotton goods of a fine quality. At Charlotte is the Rock Island Manufacturing Company, whose factory turns out the best cloths and cassimeres. The Raleigh Sentinel has seen samples of these, and declares that they are superior to imported. This mill runs 2,500 spindles, turns out 2,500 yards of cloth a week, consumes 3,000 pounds of wool weekly, or from 120,000 to 160,000 pounds a year. The old North State, too, has various factories scattered here and there throughout her territory."

COLONEL WILDER.—*A Merited Compliment.*—Gov. Bullock, in a speech, delivered by him at the Norfolk County Agricultural Fair, thus speaks of the labors of President Wilder, who has given for a long life, his wealth, influence and energies, to the dissemination of horticultural knowledge and horticultural acquisitions: "I meet here to-day the members of this youthful and prosperous society of Norfolk, sitting and rejoicing under the presidency of one, (the Hon Marshall P. Wilder,) who has applied the results of well-earned commercial fortune to the development of the capacities of the earth, so largely and so liberally that in every household and at every fireside in America, where the golden fruit of summer and autumn gladdens the side-board or the hearthstone, his name, his generosity, and his labors are known and honored."

PRESERVATION OF EGGS.—"Le Betier," a French paper, recommends the following method for the preservation of eggs: dissolve four ounces of beeswax in eight ounces of warm olive oil; in this put the tip of the finger and anoint the egg all round. The oil will be immediately absorbed by the shell, and the pores filled up with wax. If kept in a cool place, the eggs after two years will be as good as if fresh laid.

The American Farmer.

Baltimore, February 1, 1867.

TERMS OF THE AMERICAN FARMER.

SUBSCRIPTION TWO DOLLARS PER ANNUM.

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Half Page.....	15.00	35.00	60.00	110.00
One Page.....	25.00	60.00	110.00	200.00

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BALTIMORE.

PRESIDENT OF STATE AGRICULTURAL SOCIETY.—At a meeting of the Executive Committee of the Agricultural Society, held on Friday evening, 18th January, William H. Devries, Esq., of this city, was unanimously elected President. Mr. Devries is a merchant of Baltimore, but has a large landed property near the city, which he farms, and to which he gives much personal supervision. It is not doubted that his energy of character, personal influence, and other high qualifications, will make him a very efficient officer, and tend largely to the success of the Society.

COMMUNICATIONS.—The communication of T. S. P., on the cultivation of cotton in Southern Virginia, will be read with profit by those interested in the matter of which he treats. Our correspondent is a writer of great intelligence and experience, and we hope to hear often from him. The large amount of communicated matter this month, with which our friends favor us, and some of which we are obliged to postpone, excludes, to some extent, editorial and other matter on hand. We commend them all to the attention they deserve.

MARYLAND AGRICULTURAL COLLEGE.—Unavoidable circumstances have made it impossible to announce, with certainty, the day of reopening of the Agricultural College. It is supposed it will not be later than the first of Mrrch. Those who have business with the College, or inquiries to make, may address, in the meantime, N. B. Worthington, Register, at the office of *American Farmer*.

MODE OF USING FERTILIZERS.—J. M. S. says, "I wish you would publish an article on the mode of using the various fertilizers," &c. All the commercial fertilizers, except Peruvian guano, may be had in a finely prepared powder already prepared for use. For that a wire seive is needed, through which the finer part is sifted, leaving the lumps, which must be pounded on the barn floor to a powder. On all drilled crops, the practice is to sow in the drills, and broadcast on broadcast crops. The quantity used varies from two hundred to three hundred and fifty pounds, for most of the prepared fertilizers. To make it go evenly over the land, it is necessary that one not familiar with their use should lay off his land as for grain seeding, and make subdivisions of the quantity to be sown, putting so much by weight to each land.

DR. A. SNOWDEN PIGGOT, *Analytical and Consulting Chemist*.—In reply to occasional inquiries for an agricultural chemist, we take pleasure in referring our friends to this gentleman, to whom we are under obligations for frequent advice and assistance in the line of his profession. His laboratory is at 59 South Gay street, nearly opposite the *Farmer office*.

DESTROYING SASSAFRAS.—A friend in Delaware wants to know how to destroy sassafras bushes. We know nothing better than frequent cultivation, and close grazing with sheep, which will keep the foliage constantly cropped. If any one is better informed will he let us know?

BASKET WILLOW.—Any one having plants or cuttings of the basket willow for sale, will find it to his advantage to advertise them in our columns. We will furnish, next month, information as to the management of the crop.

BROOM CORN.—We shall give, next month, an article on *broom corn*. In the meantime, any of our readers familiar with its treatment, will oblige us by giving their views on the subject.

SORGO CONVENTION.—The Maryland Sorgo Association is announced to meet in Baltimore on Tuesday, 12th February, at 10 o'clock A. M., at Gilmour's hotel, 124 West Baltimore street.

ROTARY SPADE DIGGER.—This implement, we would say to a correspondent inquiring, has not yet been so perfected as to make it desirable for ordinary farm use.

Advertisements.

COMMISSION MERCHANTS.—We do not understand why commission merchants, among whom there is so active a competition, fail to see the advantage of keeping their names constantly in the eye of the producers, the men from whom they get all their business. We commend to their notice, as an example, and to our country friends, who want reliable and attentive agents, the advertisement of our friends, *Hewes* and *Warner*.

EXPRESS ACCOMMODATION.—The attention of parties interested is called to the advertisement of the Morris Express Company, (Europe, Havana, and California,) office, No. 50 Broadway, New York.

FERTILIZERS, IMPLEMENTS, &C.—Our advertisers speak for themselves in all these matters, and we hope our readers will read carefully what they have to say.

COTTON SEED FOR THE AMOOR RIVER.—Mr. Edwin A. Lewis, whose Business Agency is in the office of the *American Farmer*, has just shipped a barrel of cotton seed, the product of Accomac county, Va., to the agent in New York, of the Governor General of Siberia, for experiment in the Russian colonies upon the Amoor river.

FARM IMPLEMENTS FOR BUENOS AYRES.—The same gentleman has forwarded also in the past month, one of Bickford and Huffman's valuable grain drills, a sulky cultivator, and other implements, also, some choice seeds to Buenos Ayres.

MEADOWS.—TOP DRESSING.—On most farms there are portions of meadow land whose product of hay is very small compared with others in the vicinity. These sections can be much improved, without breaking up the sward, by a liberal top-dressing of lime and salt. These will invigorate the growth of the aftermath, and if repeated the ensuing spring, will render the poor spots equal in productiveness to those by which they are surrounded. The experiment is worth trying, unless it is deemed desirable to break up the whole meadow for the purpose of reseeding at a future day. Nearly the same results can be produced by the application of leached wood ashes as a top-dressing where the material is attainable for that purpose.

Book Notices.

LANDRETH'S RURAL REGISTER AND ALMANAC, 1867.—We are indebted to Messrs. Landreth for a copy of their very instructive annual. It contains a description of the seeds raised on their extensive grounds, or imported by them for sale, with a monthly calendar of useful hints and instructions, which will be found especially useful to the inexperienced gardener. It is distributed gratuitously, and the proprietors say that they sent out last year two hundred and fifty thousand copies.

Bloomsdale, the seed grounds of Messrs. Landreth, near Philadelphia, contains six hundred acres of land devoted to seed growing, and far exceeds, in extent, any other such establishment in the country, while its business is said to be conducted with great skill and admirable system. We copy from the Register the following:

ESTIMATE OF FARM SEEDS FOR AN ACRE.

Wheat, broadcast	1½ to 2 bushels.
" drilled	1½ "
Rye, broadcast	1¾ "
" drilled	1¼ "
Barley, broadcast	2 to 2½ "
" drilled	1¾ to 2 "
Oats, broadcast	2 to 3 "
" drilled	2 "
Timothy, when sown with grain, in autumn, to be followed by clover in spring	1½ to 2 gallons.
Red clover, sown on grain in spring in connection with timothy, (without timothy, double quantity)	1½ to 2 "
Herds or Red Top	1 to 1½ bushels of 14 lbs.
Kentucky Blue Grass	1 to 1½ " " 14 "
Lucerne, drilled	10 "
Dutch White Clover, broadcast	8 "
" " " drilled	6 "
Lawn Grass	2 to 2½ bushels of 15 "

This is an approved admixture, designed to produce permanent lawns, growing richer with age, and uniting beauty with utility. It is alike adapted to the smallest town plat or extended lawn.

Millet	¾ to 1 bushel.
Corn, in hills	1 to 1½ gallons.
Sorghum, or Chinese Sugar Cane	2 to 3 quarts.
Buckwheat	1 bushel.
Beets and Mangold Wurtzel	4 to 6 lbs.
Carrots	2 to 3 "
Turnips and Ruta Baga	1 lb.
Parsnips	4 to 6 lbs.
Beans, in drills, 2½ feet apart	1½ bushels.
Potatoes	12 "

AMERICAN EDUCATIONAL MONTHLY, devoted to popular instruction and literature.—This is the title of a monthly of forty-eight pages, ably conducted, and should be in the hands of teachers especially, and all interested in the important work of education. It is published by J. W. Schermerhorn & Co., 430 Broome street, New York, at $1 50 per annum.

FARMERS' ADVERTISER, St. Louis, Mo.—Published by Plant & Bro. Sixteen pages, twice a month. Price $2.00, in advance. This is an ably edited Journal, adapted to the very important agricultural region in which it is published.

A FEW THINGS TO BE THOUGHT OF BEFORE PROCEEDING TO PLAN BUILDINGS FOR THE NATIONAL AGRICULTURAL COLLEGES, is the title of a pamphlet, published by Frederick Law Olmsted, Esq., of the firm of Olmsted, Vaux & Co., landscape architects, New York.

Being called in as adviser to the Board of Trustees of the Massachusetts Agricultural College, in planning and locating their buildings, and laying out the grounds, the division and disposition of lands, and adaptation of the constructions to be erected to the special ends of the institution, this report is the result of Mr. Olmsted's efforts to meet the views of the Board. It contains not only a special plan for the Massachusetts College, but discusses the whole subject in a manner that will prove interesting and instructive to all who may be concerned in such institutions. We are much indebted to the politeness of the author in forwarding to us several copies of the report.

TURF, FIELD, AND FARM.—We acknowledge our remissness in failing to make favorable notice sooner, of this able and valuable weekly. The department of the farm is edited by Mr. Fred'k G. Skinner, the only surviving member of the immediate family of John S. Skinner, Esq , so well known as the founder of the *American Farmer*, and as one of the most intelligent and earnest men of his day, in all that pertains to agricultural improvement. This *Old Farmer* feels especial interest, therefore, in the field department of the journal named, and, in all its departments, it will not fail to commend itself to the intelligent reader who may be interested in the matters, of which it chiefly treats. Published by Bruce & Millard, 37 Park Row, New York. Price $5.00.

THE PRACTICAL ENTOMOLOGIST. By E. T. Cresson, Philadelphia.—The fearful, and constantly increasing loss to the farmer, from the ravages of insects, should lead to more careful study of their habits, and to more effective preventives of their depredations. This paper is devoted especially to these objects, is furnished at the extremely low price of fifty cents a year, and deserves a very extensive circulation. A man may cultivate his land poorly, and thus keep himself poor without particularly injuring his neighbors, but one who makes his farm a breeding place for destructive insects, injures not only himself, but his fellow men. While all kinds of knowledge that will enable us to increase the productiveness of our fields are desirable, that which relates to the protection of what is produced is even more important.

AMERICAN BEE JOURNAL is a monthly octavo of twenty pages, edited by Samuel Wagner, Washington, D. C. Its specialty is bee culture, as the name indicates, and no one particularly interested in that branch of rural industry, should dispense with so useful a guide as it no doubt is. The subject of bee raising should command a great deal more of the attention of families in the country than it has done, and to this end it is necessary that we should be more familiar with it. Such a journal as this will keep its readers well posted in all that concerns it, and if well distributed, would tend greatly to the increase of a very important item in our rural interests.

THE RICHMOND ECLECTIC.—A monthly magazine of foreign literature. The selections for the January number are from *Blackwood*, *The Intellectual Repository*, *Sunday Magazine*, *Chamber's Journal*, *Saturday Review*, *The Argosy*, *Cornhill Magazine*, *Good Words*, *All The Year Round*, and *St. James Magazine*. The *Eclectic* is a most valuable addition to the literary resources of our Southern friends, giving them; in a home magazine, the range of all the best English publications at the very small cost of $4, in advance. Those who have known the value of *Littell's Living Age*, in this respect, and the Boston *Eclectic*, will appreciate the advantage of this new rival of those publications, under the direction of Rev. Messrs. Hoge and Brown, of Richmond.

SECOND ANNUAL REPORT OF FRUIT GROWERS' ASSOCIATION OF EASTERN PENNSYLVANIA.—J. Rutter, Esq., of West Chester, Pa., favours us with a copy of this report, containing, among the interesting proceedings of the association, several valuable papers, on subjects connected with fruit growing. That of Mr. Rutter, as chairman of the General Fruit Committee, discusses the question, Do varieties run out? He maintains the affirmative with much success, and hence argues the necessity of producing new varieties.

PRACTICAL FARMER OF THE MIDDLE STATES AND RURAL ADVERTISER, is the title of a monthly Journal, edited and published by Paschall Morris, Phila. This is an enlargement of *Morris's Rural Advertiser* heretofore published, and is one of our most valued exchanges. Price $1.

THE LADIES' HOME.—This is an able and elegant weekly, published at Atlanta, Ga. Devoted to the varied interests of Southern womanhood. $5.00 per annum, in advance. Thos. S. Powell, Proprietor; Mrs. L. Virginia French, Editress.

THE MASONIC REVIEW.—Is the title of a new weekly royal octavo paper just started in our city, the first number of which is illustrated by an excellent likeness of the Hon. Benjamin C. Howard, P. G. M.; also, engraved views of both the old and new Masonic Temples—the latter now being erected on Charles street. The general contents of this number are highly entertaining to the fraternity, and from the ability of the editorial corps engaged, as well as promised contributions from some of the most eminent talent belonging to the craft in Maryland, subscribers have a good augury for its continued interest. The publishers, Messrs. W. H. Richardson and J. B. Rose, evince a spirit of enterprise in the work that entitles them to the general patronage of the fraternity.

JOURNAL OF APPLIED CHEMISTRY.—Devoted to chemistry as applied to arts, manufactures, agriculture, &c. Published by Dexter & Co., No. 17 Spruce street, N. Y. $1.50 in advance. No one interested in the subject of chemistry, in any of its various applications, can well dispense with such a publication as this. We observe that Professor Erni, late Chief Chemist in the Agricultural Department at Washington, has become associate editor of this Journal.

NORTH BRITISH REVIEW AND BLACKWOOD.—We are in receipt of these valuable republications, for December, from the Leonard Scott Publishing Company. For terms, &c., see advertisement in January.

THE LAND WE LOVE.—We are in regular receipt of this able Southern Magazine, edited by General D. H. Hill, at Charlotte, N. C We are much pleased to learn that it is very prosperous. Price $3.00 a year, in advance.

☞ Goats furnish a small supply of very rich milk, and as their food costs little, they have been found very profitable animals by families needing but little milk. Some of the best yield three quarts per day, but generally from three to four pints.

☞ Pea straw is richer in oil, albuminous or flesh-forming matter, than the straw of the cereals. The woody fibre is also more digestible. This fully accounts for the repute in which it is held as fodder for sheep and cattle.

☞ If sheep are in poor condition now, they must be gradually brought up; feed oats in the sheaf, a few daily, and some roots and good hay. Let all have the range of dry yards or fields, and warm sheds well ventilated.

Weed and Staple of the Cotton Plant.

A correspondent, writing from Joynes' Depot, N. C., says: "I would be pleased, as no doubt many others would be, if you would publish in the *Farmer* the analysis of the cotton plant, that we may see and know better, what kinds of manures are best adapted to the growth of the weed and likewise the staple. Some of our lands will produce 'weed' in abundance, but will not produce the lint to any amount worth mentioning. Again, some will produce abundance of lint, if we can only get the weed to grow high enough to bear the bolls in large numbers."

In reply, we would say that where the growth of the "weed" is deficient, and the bolls are still well-filled, the deficiency is probably in the organic matter of the soil. Any manure that furnishes abundance of nitrogen would be applicable to such a case. Peruvian guano, ground bones, fish guano, would all stimulate a growth on such land, but none of these fertilizers should be looked to for permanent improvement. If they facilitate the development of the crop, it is all can be expected of them.

In the other case, the cause of the deficiency is probably the absence of the mineral constituents of cotton seed and fibre. What these are may be seen by reference to the composition of these products as given by analysis. It is useless to consider the composition of the stalk; as that always is, or always ought to be, returned to the soil. What is taken off should be considered.

Now, the proportion of ash in the fibre is 1.25 per cent., and in the seed 4.03 per cent; and the composition of that ash is as follows:

	Fibre.	Seed.
Potash	35.26	34.75
Soda	5.11	1.10
Lime	16.73	6.00
Magnesia	9 47	13.73
Peroxide of Iron	2 07	0.55
Silicic Acid	0.26	Trace.
Phosphoric Acid	5.42	35.85
Sulphuric Acid	3.53	3.96
Chlorine	6.60	0.47
Carbonic Acid	15.55	3.59
	100.00	100.00

If now we consider what a crop of cotton removes from the land of the more important of these constituents, the following table will accurately represent in pounds the quantity carried off, allowing the product of the fibre to be 200, and those of the seed 600 pounds:

	By fibre.	By seeds.	In all.
Potash	0.881	8 403	9.284
Soda	0.128	0 266	0.394
Lime	0.418	1.451	1 867
Magnesia	0.237	3.320	3 557
Phosphoric Acid	0.136	8.669	8.805
Sulphuric Acid	0.088	0.958	1.046
Chlorine	0.166	0.113	0.279

It will not answer to return these substances

to the soil in the quantities above named. There must be a very much larger amount added, that the roots may find a supply in whatever direction they extend themselves. The ingredients themselves must, however, be furnished. Unleached wood ashes, with plaster and salt, would supply the potash, soda, lime and sulphuric acid, while a manure containing at once the soluble and bone phosphates of lime, with a sufficiency of ammonia to promote a vigorous growth, would supply the remaining constituents, except the magnesia, which is probably sufficiently abundant in most of our Southern soils.

The Sulky Cultivator.

In reply to inquiries we give below a description of the Sulky Cultivator. We learn from reliable sources that it has been sufficiently tested to determine its working value, in the hands of an ordinarily intelligent workman.

The driver, it will be observed, takes his ease in his sulky, and may whistle all day through his corn field. He drives two horses, one on each side of the corn row, and the working may be continued till the corn is shoulder high—which is long enough. The description here given is that of the manufacturer.

"Those who have used the Cultivator, will heartily agree with us, that the work is well and thoroughly done by the use of the adjustable shanks and reversible shovels, whereby any reasonable quantity of earth can be thrown either to or from the corn; that the shanks are so attached to the frame that the shovels can be arranged to run close together, or distant from each other; and that while the front shovels can be adjusted to throw the soil either to or from the corn, the rear shovels can be arranged to operate the reverse, plowing either deep or shallow, as may be desired.

"The driver can easily and readily guide and turn the Cultivator by the use of his feet, having both of his hands free to manage the team; by pressing on the stirrup with either the right or left foot, the machine will turn either to the right or left, as the case may be; and when neither foot is used, the Cultivator will follow the direction of the team.

"We fully appreciate the necessity of having agricultural implements strongly built and well proportioned, and have spared no pains to make the 'Stafford' simple, durable, and substantial, using nothing but the best material, and employing the best mechanics and workmen.

"The draft is as light as that of any cultivator built, in this respect excelling many now offered for sale. We have but to say that it is not hard work for two horses, as evidenced by the thousands that are in use, all of which have been operated with the ordinary farming teams of the country.

"By the use of this Cultivator much manual labor is saved, one person—riding on the plow—doing the work of two single shovel plows, or of four men with hoes, completing his labor with but little fatigue.

"The main frame rests on an axletree supported by high wheels, running four feet apart. The frame is about two and a half feet from the ground, and to it are attached four plows—two passing each side of the row to be cultivated. It requires but one man to operate the machine.

"The driver controls the direction of the Cultivator with his feet in a very simple and effective manner, having both hands free at all times to manage the team. The process is as follows: The tongue is pivoted to the front end of the frame work, and extends two feet back to the point where it is pivoted; on the rear end of the tongue there is a circular arm, which rests and slides on a corresponding circle attached to the frame work; four stirrups or projections are placed on this circular arm, on which the driver rests his feet; and thus, if he presses his right foot, he changes the line of the draft, and the machine turns at once to the right; if he presses his left foot, the machine turns to the left; if he presses neither foot, the machine follows the direction of the team. By this simple arrangement the machine is guided quite easily, while the team keeps on a straight course.

"Attached to the Cultivator is a fender, which effectually prevents the small corn from being covered. This is so constructed as to be readily put on or taken off, as the size and growth of the corn may demand. This fender is self-adjusting, accomodating itself to uneven ground, and to the direction the Cultivator may be guided.

"The application of 'self-adjusting plows,' to this Cultivator, is so novel, that it has excited the surprise and admiration of all who have seen or used it. All farmers are aware that if the common plow strike an unseen obstacle, such as a root or a rock, the obstacle must either give way or the team be brought suddenly to a stand, or the plow or harness or both must break; and the trouble and expense accruing from such accidents, are important considerations. In Stafford's Cultivator this objection is entirely overcome. The shanks to which the plows are attached are pivoted to the frame work, and to the front shank is attached a chain, which goes forward and passes around a pulley and then back to the

rear shank, the point of the plows being back of a perpendicular line from where the shanks are pivoted to the frame. Now when the front plow strikes an obstruction, it raises itself until it clears the obstruction, while the rear plow, remaining in the ground, brings it to its place again. The rear plow operates in the same manner, except that the front plow remains in the ground and brings it to its place immediately.

"Throwing the plows out of the ground, is done by means of a joint in the frame in front of the axletree. The driver, by rising partially from his seat, and throwing his weight on the front of the frame work, causes the joint to go down, and raises the rear plow entirely out of the ground, while the front plows fall back under the axletree. The plows should always be thrown out before turning round.

"The plows are made of the best cast steel, of an oblong shape, and can readily be so arranged as to make a wide or narrow furrow, or so as to throw the soil to or from the corn. The depth is easily gauged by lengthening or shortening the chain mentioned previously.

"A prominent feature is the ease with which the Cultivator is turned. *It can be turned around in one-fourth the space required for other wheeled cultivators, without cramping the team or straining the machine. It will also operate in all kinds of ground.*"

Ammonia from the Atmosphere.—We are indebted to the *Journal of Applied Chemistry* for the following item, which indicates a discovery in chemistry, the importance of which to agriculture can hardly be over estimated:

Production of a Valuable Manure from the Air.—The highly important agricultural problem of the fixation of the nitrogen of the air in the form of ammonia has been solved by MM. Marguerite and De Sourdeval. Their process is founded on the *cyanization of barium*, and the subsequent decomposition of the cyanide by steam. A mixture of carbonate of baryta, iron filings, refuse of coal tar, and saw dust, is first calcined through an earthen retort; through the porous mass thus obtained, a current of air is passed, the oxygen of which is converted into carbonic oxide, while its nitrogen is transformed in the presence of charcoal and barium into cyanogen, and produces considerable quantities of cyanide of barium. The calcined mixture is introduced into a strong iron cylinder, and a current of steam at a temperature less than 300° is passed through it. All the nitrogen in the cyanide is disengaged under the form of *ammonia*. It is impossible observe the authors, to foresee all the results of this discovery. Among other things it suggests the production of nitric acid from the air by oxidising ammonia.

Excelsior Wheat Cleaner.

Since our last issue, a machine under this name has been exhibited at the warehouse of Henry M. Warfield & Co., Spear's Wharf. On the only day, on which we had an opportunity of inspecting, being the first after its arrival, there was some accidental derangement which interfered with its operation. From what we saw of it, however, we can readily suppose that the following account from a contemporary, of its subsequent operation, is a correct one:

"Several samples of wheat were poured through the machine, and every particle of dirt, garlic, cockle and smut removed, leaving the grain clean and bright. It made no difference how the grain looked when it went into the hopper, it came out worth fully seventy-five cents per bushel more than before for the lower grades, and the best wheat tried was declared fully thirty per cent. better. This machine was invented in 1860, improved in 1866, and at the Agricultural Fairs at Auburn and Saratoga, New York, carried off the first premium over all competitors. The wheat, on being placed in the machine, is subjected to the action of a revolving wooden cylinder, garnished with rows of iron teeth, which promptly scour the wheat from smut and brighten it. It next passes on between a large sheet iron covered cylinder, (which occupies the centre of the machine) and a series of five wooden rollers, packed with felt and covered with coarse cloth, in which the cockles are caught and removed by a series of stout, bristly brushes, fixed at one end of the machine. The large central cylinder is turned by the friction of the smaller cylinders, which are pressed up to it by springs, which yield sufficiently to prevent the grain from being crushed or bruised.

"The wheat, after passing the lowest roller, (by which time every cockle has been separated from the grain,) comes in contact with the blast from the revolving fan, which blows away the chaff, cheat, garlic, and light, extraneous substances, the hinge-board being set in accordance with the weight of the wheat. Worked by hand-power, this machine will make forty revolutions per minute, and cleanse ten bushels of wheat per hour, to each set of rollers one foot in length—the capacity of the machine can, by lengthening the rollers, be increased to any extent—and where horse-power is applied double these results can be obtained.

"This is a matter which deeply interests every

wheat growing farmer in the country, as it will certainly so cleanse the wheat that the enhanced price which it will command in the market will far more than compensate in a single year for the cost of the machine."—*Balt. Gaz., Dec.* 7, 1866.

The machine was exhibited here by the *Excelsior Wheat Cleaning Company*, who propose to sell State and County Rights. Col. Frederick G. Skinner, who is one of the company, has the business in charge. The office of the company, 113 Broadway, New York.

For the "American Farmer."

Log Drains vs. Plank Drains.

WINTON, N. C., Jan. 8th, 1867.

Messrs. Editors:

Rusticus, page 208, January number, 1867. furnishes a correspondent with some very good "suggestions" on drains, under the caption of "plank drains;" but if economy and despatch be the object, as well as utility and durability, perhaps "suggestion" No. 2, might furnish correspondent, and Rusticus too, with a plan much cheaper, combining utility and durability, and, at the same time, economy, compared to Rusticus' plan. Therefore, to drain springy lands, and especially, if the subsoil is of a "hard-pan," which is rarely the case in springy places, or of a gravelly cast, and not subject *to cave* or "gully out" by much running, or concentration of a surplus of water in rainy seasons, I would suggest a much cheaper and more effectual plan than Rusticus, which, however, is very good, but for the additional labor and unnecessary expense attending it.

My plan—and I have had many drains cut on said plan—is to cut the ditch in the form of a V from the beginning, digging from two to four feet deep, according to soil, or depth of springs oozing from the hillsides. The ditch being finished, I have firm saplings, as nearly a size as possible, from eight to ten inches in diameter, cut from six to eight feet long, and split in two, having the pieces hauled and dropped along the ditch, end-and-end; take them and lay them in the ditch horizontally, levelling the pieces all along, and butting the ends as closely as possible, which, by-the-bye, should be sawed, and so continue to proceed till the work is finished, filling up the ditch at the same time, and breaking the joints if larger. To have this kind of drainage done well, the pieces should be ready and laid down as soon as the ditch is cut, for, in case of a heavy rain, or freezing, the sides would tumble in, or the water would cut ugly gashes, thereby rendering the work twice as difficult, and not half as effectual. In laying down the pieces, put the bark side downward, and they should be, if possible, perfectly straight, and split true, by which the work is expedited and better done, besides the oval sides fitting closely to the inward banks of the ditch, which should be cut true and even, prevent them from bulging inwardly when a glut of water settles at that point, as would be the case in all heavy rains. If pine is not convenient, any other tree that would split true will answer, and if none can be had that will split *true*, the round log is just as good, with the exception of double the timber, hauling, cutting, handling, &c. If correspondent, or Rusticus, wishes to know how long they will last, as they, no doubt, already know, provided they are always kept wet, so long will they last, or, at least, an indefinite time; and if there is descent enough, and their lead ditches are kept open and well cleaned out, so long will these *blind ditches* (as we in North Carolina call them) keep open, provided they are fed by spring. This plan, Rusticus, no doubt, will admit to be the cheapest, and I *know* it to be, by a thousand per cent. better, having tried and seen tried by my father his plan for twenty-five years; for, as incredible as it may seem, yet, to the contrary notwithstanding, they will fill up in a comparatively short time. I would advise all farmers having marshy lands to ditch, after cutting ditches to be left open, where their own good judgment prompts them, to use this plan in draining such lands. By this mode, they would greatly enhance the value of the land, besides avoid the trouble and expense of keeping their drains open, and the miring of turn in mucky or springy places (called *galls*) such as we meet with in all marshy places. To illustrate my point, Mr. Editor, if I am not already taxing your patience and time, I will give you my experience in low land and hillside drainage. My father had a very rich piece of low grounds, which he ditched, (so he said) and cleared, and and which, even with *his ditching*, (from one-and-a-half to two feet) did produce marvellously, yielding from forty to fifty bushels corn per acre; but, after a little, alas! alas! while it produced just as fine a growth as ever, by some hook, or crook, it was all more or less *doty*. Here was a dilemma.—doty corn—heavy expense to raise it, (for, mark you, he had not plowed this land only with oxen, and then only in spots, and even then, sometimes, they and their driver and leader would all be floundering in the mire together.) What must be done? Very naturally, for the want of *thought*, he concluded to abandon it, and so he did. Fifteen years afterwards, then a perfect mire, all grown over in bullrush and flag,

a fit residence for foxes and serpents, it fell to my charge. I write this not with a view of blowing my own trumpet, but to show what can be affected by this mode of under-drainage, in the absence of a better.

Against the protestations of my father, I ditched it deep, deep, deep, going through the soil to the sand, in some places, five or six feet. These, of course, I left open, and then commenced this plan of under-drainage. What now is the result? Why, it is the only reliable piece of land, during a long, dry spell, such as we had last summer, I have on my premises, yielding from sixty to eighty bushels corn to the acre, and perfectly arable at any time with horse or mule, and never failing of a fair crop, and *sound*, alike indifferent to wet or drouth, not even rolling during a drouth of seven weeks last summer. Again, in this marsh was an awful *gall*, (springy place) some fourth of an acre, and yet there was no water visible, but to all appearances as dry for three or four inches, and as fertile as any other part of the marsh. On this spot corn would flourish, until it grew to the height of eight or ten inches, when it would begin to turn yellow in streaks, and thus continue till it had grown perhaps some two or three feet. The extremities of the blades, meanwhile, drying up, when it would suddenly fall and die, *mighty dead indeed*. In this spot I sunk a ditch on the above plan, some four feet deep, about midway of which was a subterranean slough, full of water and mire, locked up by the surrounding soil, which might be sliced up like cheese, impervious to light or air. In a few days this place began to shrink, (for this was the highest spot around) and continued to sink, until it became like the surrounding land, and now, wonderful to tell, produces as fine corn, and yields as well as any other part.

Apropos; plank drains, if Rusticus, or correspondent, has caving hillsides, which they wish to drain, the best plan is to cut ditches in the above mentioned form, and have plank, four or five ins. wide, nailed together in the shape of a V triangle, and laid in the bottom of the ditch, and not be too nice about the joints, but even leave wide joints, or bore inch holes every two or three feet apart along the box, on all sides. The water will naturally seek a passage, and percolating through the sand, will, as a matter of course, find vent through these holes or joints.

SUGGESTIONS, No. 2.

☞ The hop crop in England was more than ordinarily good and was saved in good order, as reported by the *Kentish Gazette*.

For the "American Farmer."

Storing Turnips—Roots for Stock.

Messrs. Editors:

In your last, January number, I notice an inquiry from Mr. Clark, of Newbern, N. C., relative to storing turnips, provender for stock, &c. I have had some practical experience relative to the subject under consideration, and will give him, as well others, my mite towards a solution of the difficulty. As the common white turnip, (owing to their moist nature, the most difficult to preserve in a solid state) I would not cultivate them, except for culinary purposes, sufficient for winter and spring use. They ought to be packed in a cool, dry cellar, (the thermometer ranging at 40 to 45 degrees) in bins or barrels, the turnips mixed and covered with dry sand or with a light dressing of airslacked lime on each layer of roots, exclude light, frost, heat and air. The cellar or a vegetable house should have an opening near the ceiling, or through the roof, for the escape of the gas arising from the vegetables.

For out door storage, draw the turnips during dry weather, and before frost sets in; top them close to the bulb; form pits on a declivity four inches deep, two feet wide, and any length required; lay down five inches of dry straw or corn stalks, throw in the turnips carefully, forming a roof-shaped pile; between each layer of roots mix sand or lime as previously described, then lay on six inches of straw, dry shucks, or inverted corn fodder, and on the straw place a small angular wooden spout, the open side down, the end of the spout jutting out at the east or south end of the pile, for the escape of dampness and the gas. Finish by a covering of about sixteen inches of dry earth, leaving a water drain six inches below the foot of the pit. The following are considered the most nutricious and profitable vegetables for feeding stock. They keep about equally well and may be stored in 2½ feet pits, and as directed for the white turnip, viz. yellow ruta baga, white sugar beet, mangold wurtzel, large white and orange carrot, parsnip and Irish potatoes. Cashaw pumpkins and what the lager beer brewers call "Grains and Dough" are excellent and cheap (seven cents per bushel) feed for horned cattle and swine.

Horses eat raw carrots with as much avidity as they will corn, also parsnips and beets. For cattle, sheep and swine, either of the roots named comes not amiss. For these however the roots should be sliced and mixed with cut fodder, corn chop, or crushed corn and cob. The parsnip should be fed sparingly to horses. Again, broad

cast Indian corn and sorghum for soiling, or they may be cut in the flower and cured; also rye, rape or German greens, sunflower and waste vegetable leaves for soiling. The white field bean and cow pea may be cooked for cattle and swine. Sheep will consume the pea and bean hulls and vines. Now, presuming Mr. Clark grows all or half the crops named, he can afford to cure the grass he alludes to for winter and spring use. Stock, like ourselves, (human beings) require a change of food. They must have some grain, dry fodder and salt, in addition to roots and green fodder. If corn commands too high a price, invest a small amount in the purchase of farm machinery, crush the corn and cob into chop, thus saving 33 per cent. of corn, and making more nutricious food than corn alone. There is a diversity of opinion relative to the value of corn cobs. Granting they contain no nourishment, do they not serve to extend the bowels and correct acidity? A horse will eat his manger, a cow pine shavings, if deprived of dry fodder. Without seriously deviating from the subject, I will add that the Irish potato planted at the south should be mulched, which will tend to keep the crop cool, moist, and insure a fair yield. The sun flower will yield eight tons of green fodder per acre. Horses and mules eat the entire plant and seed with as much avidity as the best hay.

Turnips left in the field after frost sets in will perish—not caused by frost so much as by alternate freezing and thawing.

If sheep are turned on the crop it should be done previous to severe weather. I will add, speculatively, that roots stored in pits north of Mason and Dixon's line can be preserved with less covering than south of it. In this latitude we have alternate light snows, severe frosts and thaws, consequently have to guard against frost, heat and wet. Were I a Northern or Canadian farmer, I would not hesitate (with straw surroundings) to cover roots under a snow drift, or a Southern planter, in a grotto. We find in this (Baltimore) county some difficulty in preserving the sweet potato through the winter. Will Mr. Clark enlighten us on the subject?

During the summer or fall months, a heap of dry sand ought to be put under shelter for vegetable storage. Cut straw, chaff and saw dust are good substitutes, especially for transportation in barrels.

Again, for swine, plant a lot in Jerusalem artichoke, and the ground pea or pea nut either will stand frost and wet uninjured. Swine turned on either crop will thrive without other feed.

R. S.

For the "American Farmer."

The Division of Farms.

QUEENSTOWN, Queen Anne's co., Md.
January 9, 1867.

Editors of American Farmer:

I salute you with the compliments of the season, and wish you many happy returns! Your old friends, with one accord, greet your reappearance as another harbinger of the hope that, in reality,

"Grim-visaged war has smoothed his wrinkled front."

At no period was there ever a greater need of agricultural journals, as a means of communicating and exchanging views in regard to the altered condition of affairs, and of suggesting modes of adaptation to meet the changes that have occurred. It may almost be said that the whole system of agriculture in the late slave-holding States, has been entirely changed. A free interchange of opinions and suggestions may enable us the more readily and profitably to meet this changed condition of affairs.

There is a very prevalent idea that the great remedy for our present embarassments lies in the subdivision of estates, and complaints of the difficulties of the times in regard to the want and unreliability of labor, are most apt to be met with the friendly advice, to "cut up your farms." This, in my view, is an heroic remedy of relieving one, of both his means and his miseries by the same short process, and as of rather better adaptation to the philanthropic idea of "conferring the greatest good upon the greatest numbers," than of especial benefit to the individual landholder. Just now, onerous taxation upon all you make, and all you sell, stands much in the way of such broad philanthrophy. We will suppose a farm of six hundred acres, divided into four or five fields, and yielding, under present disadvantages, fifteen bushels of wheat, and forty of corn, per acre, will the owner be compensated for the outlay in meeting the buildings, fences, &c., necessary to subdivide it into three farms? By the advocates of the doctrine of *homœpathic farms*, it is generally asserted that they should not *exceed* this number of acres in size. (In fact there has been a mania for "ten acres enough.") In my opinion, unless these products are more than trebled, he will not. It must be recollected that to each subdivision a proportionate quantity of grazing land is necessary. There will, therefore, be a much smaller portion of the whole area under grain cultivation, and it is upon this species of product that the landlord's revenues are usually based. It is argued that the land will be much more readily

improved. This may be the case if you are fortunate enough to get a tenant who does not think his only business is "to get *his* living out of the lands," and leaves but little *life in it*. Tenants are frequently as sorely put to it for want of labor as the proprietors. It must also be remembered that for these so-called improvements you are apt to be severely taxed. What then is the remedy for the present difficulties? Is it better to sell off a portion, or to attempt a system of grazing? To follow this successfully a certain portion, at least, of your land, must be in condition to produce good crops of hay. I will remark that this clamor for small farms is, in my view, one of those erroneous notions propagated by our proximity to Yankee land, and not at all adapted to our situation. In New England and the Northern States, it is rare to find the owner of several hundred acres of land, exclusively engaged in attending to its cultivation. Perhaps he has his finger in a half dozen other pies. He may be interested in a manufactory, a tannery, a hotel, or during the winter months be engaged in shoe making, patent medicines, clock cleaning, or perhaps as a member of Congress. Now we are not yet up to these facilities of helping along the farm. What then is best for us to do?

I have hastily thrown together these views, in the hope of eliciting suggestions from others, who, perhaps, as well as myself, may have experienced the difficulties of the times. I hope the subject will, in the cant phrase of the day, be "thoroughly ventilated." D. E. C.

For the "American Farmer."

Cotton Culture in Virginia.

Your excellent journal for January contains an interesting letter from the late Dr. Hinkley, on the profits of cotton culture in Greene county, Alabama. With your permission, I propose to compare the profits attending the cultivation of this plant in Virginia, with those of the boasted cane-brake lands of the former States. Your correspondent furnishes the requisite data in the one case, and you will have to depend on the veracity of the writer of this for the necessary details in the other.

Cotton has been grown in the counties bordering on North Carolina for many years—say in Southampton, Sussex, Greensville, and Brunswick. Wherever the soil suits, it is one of the staple crops. To what extent it is cultivated in the counties farther east, whose commercial relations are with Norfolk, I am not particularly informed, but the soil and climate are equally favorable to its production. Last year it was extensively planted in Dinwiddie and Prince George, and, in fact, up to the very banks of the Appomattox river. Within a mile or two of the city there was one field of a hundred and thirty acres, and more or less on almost every farm.

Our lands being poor in comparison with those of Alabama, it is necessary to make free use of guano, or some other active fertilizer. From 250 to 300 pounds is a liberal application; less will do when the land is in good heart. With such a dressing, the planter may count with reasonable certainty on a bale of 400 or 450 pounds from two acres. Under less favorable circumstances, a bale from three acres is about a fair yield.

This is precisely the product, according to Dr. Hinkley, of the Alabama lands, only that the Southern bale is fifty or seventy-five pounds heavier than ours. But there this product is from the natural soil, while here it is from the improved soil; and improved at a cost, say of twelve to fifteen dollars. But, on the other hand, the capital necessary for the purchase and stocking of a cotton plantation in Alabama is very great. Indeed, Dr. Hinkley expressly states, that good land is worth ten dollars per acre rent. Here, on the contrary, land is so cheap and abundant, that the rent in the one case, and the preparation in the other, may fairly be put in opposite scales without a material preponderance on either side.

Dr. Hinkley furthermore states—what indeed every intelligent man knows—that in Alabama, cotton is the most precarious crop grown. It has enemies to contend with every year, as the boll-worm and the caterpillar; and it is liable to a formidable disease known by the name of rust. Some seasons are much worse than others, but the plant is seldom wholly exempt from attack by one or the other.

In Virginia, on the other hand, these drawbacks are unknown, and cotton is as certain a crop as corn, wheat, or tobacco. Even in the last very peculiar season, which was excessively wet in spring, followed by a long-continued drought in summer, the product was very little below the usual average. The staple was a little shorter, and the grade not quite so high, but there was no other difference.

These comparative results may be quite unexpected to a stranger, but they are nevertheless reliable. If the cotton plant here does not attain the large proportions it does in Alabama, the difference is made up by the increased number of plants—just as the small Northern corn, by reason of the greater number of stalks, is fully as

productive, indeed more so, than the gigantic growth of the South.

The culture of cotton in the Southern States attracted last year many adventurers from the North, the most of whom, it is believed, sunk money. Such persons will doubtless be shy of engaging in the business again. Should any of your readers, however, be disposed to make a trial, it might be to their interest to acquaint themselves with the advantages which are offered in Virginia.

The soils best adapted to cotton in this section, are of a light and sandy structure. The same field will produce good crops many years in succession, with an annual application of fertilizing materials. Some planters follow this plan; others plant the same ground in alternate years. The peparation and cultivation should be very careful. In the early stages of growth, the plant is liable to be drowned by wet, or choked by grass. Good draining, and the free use of the hoe should be diligently practised.

Petersburg has long been a cotton market, and is one of the best in the South. Owing to the large demand, both here and in Richmond, for the consumption of the factories, the price is always within a very narrow margin of New York quotations.

When the great advantages of tide-water Virginia come to be better known, we may reasonably expect it will be an object of attraction to strangers. It has capacities of soil and climate which will render it, at some future time, the garden spot of the Atlantic coast. Penetrated by numerous fine streams, every portion is accessible, and navigation is carried within a few miles of every man's door. The people are proverbially kind and hospitable, and will extend a cordial welcome to emigrants, notwithstanding all that has been said to the contrary.

Petersburg, Va. T. S. P.

The White Willow for Fences.

I have seen the white willow growing in many places in this State and the West, and wish to say something regarding its value for fencing. Those who pronounce it a humbug are generally of that class of men who expect nearly all kinds of shrubbery and fruit trees to grow vigorously and do well with a little or no culture or pruning. Such men should not plant the willow, or even any kind of hedge plant, expecting to make a good fence. I speak advisedly and positively when I say the white willow is *not* a humbug.

It is suited to making stockades or tree fences, but is unfit for hedges. But very few of those who try it succeed in making a good fence—perhaps not more than one in twenty.

Want of *care* is the great trouble. It is often neglected for want of knowledge as to its management and not getting it started rightly.

I will give a few simple directions for making a fence or stokade with the white willow.

Plant your cuttings in nursery rows and cultivate them as well as you would so many rows of cabbage. After one season's growth take them up and plant them on the fence line, where they are to remain, taking particular care to have them stand *perfectly upright* or perpendicular, leaning neither to the right or left. In nearly all cases where the cuttings are planted on the fence line, at first the young shoots diverge in many ways from a perpendicular, and it is very difficult to make them grow straight up as they should. Hence they should be set in nursery rows one season, and then when replanted on the permanent fence line they can be set so as to avoid thus diverging, in various ways, from the proper upright position so necessary to make a decent looking tree fence. They should be well cultivated with a horse on both sides of the row for two years at least after being set on the fence line—as much care as a farmer would give to a row of corn. All the lower limbs should be carefully trimmed off twice during the season and the young plants encouraged to run up tall and straight, and no browsing from cattle or horses. In this way good durable fence can be made, which will, in a few years, be quite a screen or shelter from the wintry winds.

To make a fancy or ornamental tree fence and windbreak—set evergreens; Norway spruce, red cedar, white pine, are among the best, and white willow. Set about three evergreens, then a white willow, and so on alternating. Keep the willows trimmed up high so as not to interfere with the evergreens, and they will fill the entire space below, while the willows will shoot up much higher, their trunks being but little in the way of the evergreens. This style of fence if well cared for would, in a few years, be an ornament to any plantation.—*Ez.*

Near Syracuse, N. Y. A. BABCOCK.

☞ On the great grain growing region of the Campagna, near Rome, where the extensive plains afford the finest field in the world for the use of the reaping machine, the old sickle is still used, and the horse "that treadeth out the corn" is the only threshing machine known or believed in.

A Short Sermon on Stables.

The recent improvements in American architecture have not reached the stables, to the extent that could be desired. Brown stone fronts, high ceilings, marble mantle-pieces, costly furnaces for warming and ventilating the dwelling, may please the eye and promote the health and comfort of the occupants, while the valuable horses of the proprietor are suffering from a poorly constructed and poorly ventilated stable.

The fault often lies in two directions. The stable may be too tight, or two open. A horse needs light, as well as air and suitable warmth and food—the vegetable structure hardly needs light more than he does. Pure air is essential. His blood cannot become purified, while the air which inflates his lungs is full of foul gases from fermenting manures. Nor is it enough to keep the stalls clean, if they are so tight that the horse is obliged to breathe his own breath over and over again. Digestion is interfered with, and all the functions of life are impeded. Lazy grooms declare that a close, warm stable, helps to make a horse's coat fine and glossy in winter as well as in summer. But, in winter, such a coat is not to be desired. Nature provides the animul with longer hair and more of it, to defend him from the cold. If the horse is well groomed and blanketed, his hair will be smooth and glossy enough all the year round. The indolent groom ought himself to be shut up for twenty-four hours in the hot, steaming air in which he would confine his master's horse, and see how he would like it. Open the doors of such a stable in the morning, where several horses are kept, and the hot air and the hartshorn are almost sufficient to knock a man down. What wonder, then, that horses so used should suffer from inflamed eyes, cough, glanders, and other ailments! The wonder is that they bear the abuse so long and so well.

Now the "*improvement*" to our sermon is simply this: *ventilate the stables.* Ventilate, both in winter and summer. The outer air should be brought in at certain places near the floor, but not in the immediate neighborhood of the horse, so as to cause hurtful drafts of wind directly upon him. Impure air must be ejected, as well as pure air brought in. This can be done in summer very well by leaving several windows open in different parts of the barn. But a better way is to insert ventilators in the highest part of the buildings, into which ventilators (square wooden tubes) shall lead from the stalls, and which can be opened or closed at pleasure. These ventilators should be covered with a cap, to prevent downward currents and the beating in of rain. By this plan, the foul air is carried off directly from the stall without mixing with the hay in the loft.—*Lower Canada Agriculturist.*

Poultry Yard.

Poultry Paragraphs.—It is a fact that most old women who live in cottages know better how to rear chickens than any other persons; they are more successful, and this may be traced to the fact that they keep but few fowls, and these fowls are allowed to run freely in the house, to roll in the ashes, to approach the fire, and to pick up any crumbs or eatable morsels they may find on the ground, and are nursed with the greatest care and indulgence.

The aim of every one who keeps fowls should be the possession of first-rate stock, whatsoever the breed may be. Every breed has its standard of excellence, and it is desirable to have that standard raised as high as the most approved system will carry it.

Every one should be made acquainted with the fact that some hens are more prolific in eggs, and that in some kinds the flesh is much superior in richness than in others; and that some are large in size and more hardy than others.

By warmth and judicious feeding a hen may be made to lay as many eggs in two years as she would under ordinary circumstances in three; and every one knows, or ought to know, that a fowl fatted at two years old, is much more tender and palatable than one that is older.—*C. N. Bement, in Country Gentlemen.*

Large Poultry Establishments.—At a recent meeting of the New York Farmer's Club, several members stated that every attempt that had been made in this country to keep fowls in large numbers had failed. One gentleman made the following statement:

I have probably spent five thousand dollars in persevering attempts to raise poultry upon a large scale. I have tried it in Westchester, Orange, and Columbia counties, N. Y., where I could procure cheap food from the city. In one case, the cost of keeping a thousand fowls was $1100, and the net results $950. I changed my location twice, hoping for better success. Then I concluded to go to Illinois, where grain was cheap. The result was the same. I have spent my time and money, and made a "lamentable failute." I have come to the conclusion that raising poultry upon a large scale in this country is not profitable. If others think it is, they can easily try it.

How to Make Hens Lay.—Many persons feed hens too much for laying. To keep twenty hens through the winter, give them three pints of corn and two quarts of oats or buckwheat per day; also, about twice a week, give them shorts or bran wet with warm sour milk, of which they seem very fond; make it quite wet, and put in a large spoonful of ground black pepper. Give them all the green stuff that can be had, such as cabbage leaves, parings of apples, cores and all, etc. So fed, with comfortable quarters, they will lay all winter. Keep only early spring pullets. Change cocks every spring. In proof of the above, we will merely observe that a neighbor had, among a lot of hens, one that would *not* lay under any circumstances; and as such hens are not profitable to keep, she was considered a fit subject for the pot. On dressing she was literally filled with fat, instead of egg *ovaries.—Country Gentleman.*

Keeping Fowls.—Mr. Albert C. Vose, near Manville, pursues what seems to us a reasonable and profitable course in keeping fowls. He has enclosed an acre and a quarter of land with a high fence; and in the enclosure he keeps about a hundred and fifty hens. He informs us that during nine months of the year these fowls gave a net profit of two dollars per day, or say five hundred dollars per year. Is not this keeping fowls to some purpose? In Mr. Vose's enclosure is a running stream and fruit trees. The trees afford shade, while their fruit-bearing is improved by the fowls.— *Woonsocket Patriot.*

Who Says Hens are not Profitable?—A neighbor of ours has one hen (a native) who has in eight months, commencing January 20, 1866, and to the 29th of September laid nine dozen of eggs, brought up two broods of chickens, the last litter, ten in number, being now two months old, are weaned, and the hen is now laying her tenth dozen of eggs. The first brood, four in number, were marketed when four months old, and averaged one dollar and twenty-seven cents a piece.—*Portsmouth (N. H.) Chronicle, Sept.* 4, 1866.

Waterproof Composition for Boots and Shoes.—Take boiled oil, one pint; oil of turpentine, black rosin and beeswax, of each three ounces. Melt the wax and rosin, then stir in the oil, remove the pot from the fire, and when it has cooled a little, add the turpentine.

The Profits of a Crop of Trees.

We find in Fuller's "Forest Tree Culture," much new and interesting matter, both of a practical and somewhat speculative character. Few, he says, have ever calculated the value of an acre of oak, chestnut, hickory, or white ash. Growing as they do, in their native forests, they are generally mixed with other trees that are often of little worth, except for fuel; but assuming that an acre could be planted exclusively with some of the above varieties, one would almost be astonished at the amount and value of the yield. Taking hickory—which is always in demand for hoop-poles, (for our latitude the same calculation could be made with white ash,) Mr. Fuller proceeds to figure up the profits of an acre of land as follows. His calculations are at least interesting, and we doubt not reliable:

"Now the young one or two year old plants, or even the nuts, may be put in rows four feet apart, and the plants one foot apart in the row; this will give 10.890 to the acre. At this distance they should reach this size in five to eight years, according to the soil and the care they receive. Then they should be thinned, by taking out every alternate tree; this should be done by cutting them off near the ground. We therefore take out 5445 trees suitable for hoop-poles. Their value will of course depend upon the market, but we will say four cents, or $40 per 1000, which would be a low price in New York; this would give $217 80 (two hundred and seventeen dollars and eighty cents) as the return for the acre's first crop. In three or four years they will need thinning again, and we take out, as before, one-half, or 2722; these will, of course, be much larger; and if they will reach ten feet, and are of good thickness, they will readily bring ten cents each, or $272.22 for the second crop. In a few years more they will require thinning again, and each time, the trees being larger, will bring an increased price. But we are not by this means exhausting our stock—far from it, for those we cut off at first have been producing sprouts which have grown much more rapidly than the originals; and if a little care has been given them so that they shall not grow so thickly as to be injured thereby, we can begin to cut small hoop-poles from the sprouts of the first cuttings before we have cut our third or fourth thinnings of the first crop; consequently we have a perpetual crop, which requires no cultivation after the first few years. As soon as the leaves become numerous enough to shade the ground, no weeds will grow among them, and the annual crop of leaves that fall will keep the soil rich and moist."

Sunday Reading.

It is truly a most christian exercise to extract a sentiment of piety from the works and appearances of nature. Our Saviour expatiates on a flower, and draws from it the delightful argument of confidence in God. He gives us to see that taste may be combined with piety, and that the same heart may be occupied with all that is serious in the contemplations of religion, and be, at the same time, alive to the charms and loveliness of nature.

A perpetual calm would hinder the fructification of flowers. Let this console us under suffering. By doing the proper duty in the proper place, a man may make the world his debtor. The results of "patient continuance in well-doing" are never to be measured by the weakness of the instrument, but by the omnipotence of Him who blesseth the sincere efforts of obedient faith alike in the prince as in the cottager.

There will come a time when three words uttered with charity and meekness, shall receive a far more blessed reward, than three thousand volumes written with disdainful sharpness of wit. But the manner of men's writing must not alienate our hearts from the truth, if it appear they have the truth.

What is thy profession, or thy place, office, trade, or occupation? Art thou priest, or prophet, captain, or counsellor, publican, physician, tentmaker, purple-seller, fisherman, carpenter? What need I reckon more? The Gospel hath examples of some saved of all these.

What sculpture is to a block of marble, education is to a human soul. The philosopher, the saint and hero, the wise, the good and the great man very often lie hid in the plebeian, which a proper education might have disinterred, and brought to light.

Men should know, that the noble power of *suffering bravely*, is as far above that of *enterprising greatly*, as an unblemished conscience, inflexible resolution, are above an accidental flow of spirits, or a sudden rush of blood.

Next to the devout exercises of religion, perhaps nothing will more completely remove sadness and disquietude than the silent eloquence of flowers, and the vocal music of birds.

Mortification and prayer must ever go together, or prayer will degenerate into formality.

I do not mean to affirm generally, that reason is not a judge in matters of religion; but I do maintain, that there are certain points concerning the nature of the Deity, and the schemes of Providence, upon which reason is dumb, and Revelation is explicit; and that, in these points, there is no certain guide but the plain obvious meaning of the written Word. The question concerning the eternal duration of the torments of the wicked, is one of these.

Learn, O my soul, to confess a truth, though never so much to thine own diminution. Learn to advance the honor of God, though to thy own disparagement. Learn to decline the applause of men, and banish from thy thoughts all conceits of thine own worth. Learn to speak lowly of thyself, and to mean, as thou sayest; and seek not thy praise from men but God.

If Christ will cast those men into hell, that did not visit His people, when they were in prison, into what a hell will Christ cast those men, that cast his people into *prison?* If want of mercy will condemn men at the day of judgment, what will acts of cruelty and unmercifulness do?

The law of God was not to be written on the doors of the temple, but upon the posts of thine own doors, and thou to meditate upon it, not only in going to the church, but in the field; in thine house, with thy children, in all the turnings of thy life and calling.

The vine, olive, and fig tree, in Jotham's parable, will not leave their wine, fatness, and sweetness to gain a kingdom; Herod his Herodias to save his soul; nor of corrupt minds the corruption of their manners, for a blessed reformation.

Many men take a great deal more pains for this world than heaven would cost them; and when they have it, do not know how to live to enjoy it.

The glitter of riches often serves to draw attention to the worthlessness of the possessor, as the light emitted by the glow-worm reveals the insect.

Whatever God himself has pleased to think worthy of His making, its fellow-creature, man, should not think unworthy of his knowing.

Nature has perfections, in order to show that she is the image of God; and defects, in order to show that she is only His image.

SWISS FARMING.—"We meet a woman with a great basket strapped upon her back filled with faggots; another one passes us on her way to mill, her "grist" in a bag lying on her shoulders, and a strap from the bag crossing her forehead. In the field opposite a third woman is mowing. She stops to sharpen her scythe, and we have an opportunity to inspect the implement. No bushwacker in the United States—no farmer's boy in all the Union—swings so heavy a scythe—sixteen inches long, four wide, and thick enough for the track of the Metropolitan horse railroad! A man with a three-tined wooden fork tosses up the grass to the sun which the "weaker vessel" is mowing! While watching the operation in the field, a damsel passes us with a wash-tub on her head. No grenadier of the grand army of France ever stood more erect. She is busy with her knitting work the while."

Baltimore Markets, Jan. 20, 1867.

COFFEE.—Rio, 18½a19½c. gold, according to quality. Laguayra ——, and Java —— cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	27	—
Good do	29	—
Low Middling	31	—
Middling	35	—

FERTILIZERS.—Peruvian Guano, $83; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Andrew Coe's Super-Phosphate of Lime, $60;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14.00 per ton. Shell Lime, slacked, 6c., unslacked, 10c. per bushel.

FISH.—*Mackerel.*—No. 1, $19a20; No. 2, $16a18; large, No. 3, $14a15. *Herrings*—Labrador, $6a7; Potomac and Susquehna, $8.50a9; Codfish, 6a7 cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, $11a $11.55; Family, $15.50a16.00; City Mills Super, $10.50a 12; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $6.25a 6.50; Corn Meal, $5a6.00.

GRAIN.—*Wheat.*—Good to prime Red, $3 00a3.10; White, no sales—nominal.

Rye.—$1.25 per bushel.

Oats.—Heavy to light—ranging as to character from 58 a62c. per bushel.

Corn.—White, $1.05a$1,10; Yellow, $1.02a$1.05 per bushel.

HAY AND STRAW.—Timothy $27a28, and Rye Straw $28 per ton.

BEANS.—$3.00a3.25 as to quality.

POTATOES.—$1.00 per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 11a12 cts.; Sides, 12a13; Hams, plain bagged, 16 cts.; sugar cured, 17 cts. per lb.

SALT.—Liverpool Ground Alum, $2.10a2.15; Fine, $3.10 a$3.25; Turk's Island, 58c. per bushel.

SEEDS.—Clover, held at $8.50a9.00; Timothy, $3.50a 3.75; Flaxseed, $2.50.

TOBACCO.—We give the range of prices as follows:

Maryland.

Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10 00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.

Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.30a2.35 per gallon, in barrels.

WOOL—We quote: Unwashed, 25a27 cts. per lb.; Tub washed, 45a57 cts.; Fleece, common, 40a48 cts.; Pulled, No. 1, 28a33 cts.; Merino, 37a40 cts.

CATTLE MARKET.—Common, $5 50a$6.25; Good, $7a $7.25. Prime Beeves, $7.50a8.00 per 100 lbs.

Sheep—5a6¼ cents per lb. gross.

Hogs—$8.25a9.00 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HAWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Jan. 23, 1867.

BUTTER—Ohio, in brls. and kegs, 20 to 25 cts.; Roll, 30 to 33; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 25 to 43; Goshen, 45 to 50.

BEESWAX—43 cts.

CHEESE.—Eastern, 20; Western, 18.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 40 cents per dozen.

FEATHERS—80 cents for good Southern.

LARD.—Brls. 13, kegs 13½, jars and other country packages 14 cents.

TALLOW.—11¼ cents.

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